



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

S-6J

MEMORANDUM

SUBJECT: **ENFORCEMENT ACTION MEMORANDUM** - Determination of Threat to Public Health or Welfare at the Solvay Coke and Gas Company Superfund Site, Milwaukee, Wisconsin (Site ID # B51Q)

FROM: Viral Patel
Remedial Project Manager
Remedial Response Section 5

TO: Douglas Ballotti
Director
Superfund & Emergency Management Division

THRU: Timothy Fischer
Acting Chief
Remedial Response Branch 1

Samuel Borries
Chief
Emergency Response Branch 2

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed non-time-critical removal action (NTCRA) at the Solvay Coke and Gas Company Site (Site), located in Milwaukee, Milwaukee County, Wisconsin. The area of the Site subject to the proposed Removal Action are the on-land areas of the Site (the "Uplands Area").

The Uplands Area has been conceptually divided into three geographic subareas based on historical land use. The geographical extent of each subarea is provided in Attachment 2, and the subareas are named, as follows:

1. The former Coke and Gas Production Area (“CG Area”, northwestern portion of the Uplands);
2. The former Coal Storage Area (“CS Area”, northeastern portion of the Uplands); and
3. The former Furnace and Tannery Area (“FT Area”, southern portion of the Uplands).

Hazardous substances, pollutants, and/or contaminants present in soils at the Uplands Area, namely carcinogenic polyaromatic hydrocarbons, benzene, cyanide, and arsenic and coal tar, if not addressed by implementing response actions proposed in this Action Memorandum, may pose an imminent and substantial endangerment to public health, welfare, or the environment.

Major components of the proposed action include: a pre-design investigation, in-situ soil stabilization/solidification of coal tar; targeted excavation and off-site disposal of blue-stained materials which are indicative of potential cyanide contamination; removal of remnant sewer and/or process piping; installation of a direct contact surface barrier; restoration of the Uplands Area to surrounding grades and conditions; and post-removal site control measures.

Per the August 31st, 2017 Administrative Settlement Agreement and Order on Consent for Site Fencing/Security, Engineering Evaluation/Cost Analysis and Non-Time Critical Removal Action at the Uplands (“2017 ASAO”; U.S. EPA Region 5 Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) Docket No. V-W-17-C-010), EPA will oversee performance of the NTCRA by Wisconsin Gas, LLC (d/b/a We Energies). EPA has consulted, and will continue to consult, with the Wisconsin Department of Natural Resources (WDNR). This response was not initiated using the On-Scene Coordinator’s (OSC’s) \$50,000/\$250,000 delegation and warrant authority, and there are no nationally-significant, nor precedent-setting issues associated with this response at the Site. The Site is not on the National Priorities List (NPL).

By approval of this memorandum, EPA determines that the conditions at the Site may present an imminent and substantial endangerment to public health, or welfare or the environment; and the site conditions meet the criteria of the National Contingency Plan (NCP), 40 CFR § 300.415, for a removal action. The removal action is being conducted to mitigate potential exposure of humans to hazardous substances, pollutants, or contaminants. An administrative record has been prepared for this removal action.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID #:	WIN000508215
RCRA ID #:	None
State ID #:	None
Removal Action Type:	Non-time Critical Removal Action (NTCRA)

A. Site Description

1. Removal site evaluation

Coal Tar

A previous Site Assessment established the presence of coal tar in former above-ground-storage tanks (ASTs) and in a former AST pit at the Uplands Area, which were associated with a byproduct coke and gas manufacturing facility formerly operating at the Uplands Area. The threat to public health, welfare, and the environment posed by these materials was documented in a 2002 Enforcement Action Memorandum, which is included herein as Attachment 13.

Hazardous substances in these coal tars exceeded their respective Removal Management Levels. Table 1 below presents a summary of these exceedances.

Sampling Location	Analyte	Max Concentration (mg/kg)	Industrial Soil Removal Management Level (mg/kg)
Former AST Pit	Benzene	1,200	210
Former AST Pit	1,1'-Biphenyl	3,900	600
Former AST Pit	Benzo(a)anthracene	8,000	2,100
Former AST Pit	Benzo(a)pyrene	5,200	210
Former AST Pit	Benzo(b)fluoranthene	4,400	2,100
Former AST Pit	Dibenzofuran	10,000	3,100
Former AST Pit	Naphthalene	100,000	1,700
ASTs	2-Methylnaphthalene	29,000	9,000
ASTs	Benzo(a)anthracene	10,000	2,100
ASTs	Dibenzofuran	10,000	3,100
ASTs	Naphthalene	100,000	1,700

While a 2003 Removal Action subsequently removed the coal tars in the ASTs and the former AST pit, additional coal tar was visually identified at the Uplands Area during the Remedial Investigation and Environmental Evaluation/Cost Analysis (EE/CA) Support Sampling activities. Logs of soil boring and test trenching from the RI and EE/CA Support Sampling activities note descriptions indicative of non-aqueous phase liquid (NAPL) blebs, oil-coated/oil-wetted materials, and hard tar ranging from 0 feet to 21 feet below-ground-surface in the CS and CG Areas.

Coal tar visually observed at the Uplands Area during the RI and EE/CA Support Sampling Activities is also present at the Uplands Area due to the operation of the Site as a former byproduct coke and manufactured gas facility and is sufficiently similar to the coal tar removed during the 2003 Removal Action such that it is likely to exceed Removal Management Levels.

Risk to Future Onsite Outdoor Commercial/Industrial Worker

A site-specific baseline human health risk assessment (BHHRA) concluded that carcinogenic PAHs in soils at the CG and CS Areas present a total excess lifetime cancer risk estimate above the upper limit of EPA's target cancer risk range of 1×10^{-6} to 1×10^{-4} to the future onsite outdoor commercial/industrial worker. The future onsite outdoor commercial/industrial worker was assumed to be exposed to surface soils at the CG and CS Areas via incidental ingestion,

dermal contact, and inhalation of soil-derived particulates and vapors in ambient air. Future surface soils were assumed to be a combination of existing surface and subsurface soils following future Site development. The reasonable maximum exposure scenario for this future potential use presents a carcinogenic risk estimate of 2×10^{-4} .

Additionally, analytical results for previous investigations and EE/CA Support Sampling activities established the presence of hazardous substances in the upper 0 – 4 feet bgs in exceedance of their respective industrial soil Residual Contaminant Levels (RCLs). The industrial soil RCLs are contaminant concentrations set by the state of Wisconsin to be protective of human health from direct contact with soils at sites with industrial land use designations.

Contaminants of concern (COCs) present in the soils exceeding these RCLs include benzene; carcinogenic polyaromatic hydrocarbons (PAHs) including benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenz[a,h]anthracene, indeno[1,2,3-cd]pyrene, and naphthalene; arsenic; and cyanide.

2. Physical Location

The Solvay Coke and Gas Company Site is located in Milwaukee County, Milwaukee, Wisconsin, at 311 East Greenfield Avenue. The Site is located adjacent to the Milwaukee Harbor, in the Harbor View Neighborhood, which is a primarily industrial and commercial area. The geographic coordinates of the Site are 43° 01' 00" north latitude and 87° 54' 30" west longitude. The area of the Site subject to the NTCRA is the Uplands Area, which is approximately 45 acres in size.

The Uplands Area is bounded by Kinnickinnic Avenue and the SOO Line Railroad Company railroad tracks to the west, Greenfield Avenue to the north, the Chicago & Northwestern Transportation Company railroad tracks to the northeast, and by the Kinnickinnic River to the southeast. A rail car ferry slip forms a part of the shoreline with the Kinnickinnic River. The nearest residential area is located approximately 0.14 miles west of the Uplands Area. A map of the Site in relation to the surrounding area is provided in Attachment 1.

The Uplands Area property is zoned "IO2" within the industrial-office (IO) zone type by the City of Milwaukee. The IO district provides sites for modern, clean industry and supporting, non-residential land uses that complement industrial uses or require an industrial environment. The IO2 zoning designation is reserved for older portions of the IO zoning district, which often form corridors providing a buffer between residential areas and more intensive industrial districts.

The Uplands Area is of redevelopment interest. In September 2018, Komatsu Mining Corp announced a plan to construct a headquarters and manufacturing campus on the property.

EPA conducted an Environmental Justice (EJ) analysis for the Uplands Area and the surrounding neighborhood using Region 5's EJ Screen Tool, which applies the interim version of the national EJ Strategic Enforcement Assessment Tool (EJSEAT). Region 5 has reviewed environmental and demographic data for the area surrounding the Site and has determined there is a potential

for EJ concerns at this location. A summary report of the EJ analysis is provided in Attachment 3.

3. Site characteristics

Historical Activities

Semet-Solvay Company built and managed a byproduct coke and gas manufacturing facility in the CG Area. The facility was built in 1903 and operated as a joint venture between Semet-Solvay and Milwaukee Coke and Gas in the early 1900s. Facility operations included coke and manufactured gas production; recovery of saleable by-products, including light oil (i.e., benzol, toluol, xylol, and solvent naptha) and ammonia by-products (i.e., strong ammonia liquor, ammonium sulfate); and the collection of tar waste product for removal.

The CS Area is located north of the rail car ferry slip and FT Area, and east of the CG Area. The CS Area operated in conjunction with the coke and gas manufacturing facility and was used for the storage and transportation of coal, the primary feedstock for coke and by-product production.

The FT Area is located south of the rail car ferry slip and the CG and CS Areas. The FT Area was used for rail car ferrying operations, electric railroad operations, blast furnace operations for iron production, and hide tanning operations from 1883 to circa 1950. The FT Area was then used for coal and coke storage by the coke and gas facility until 1983.

Historical industrial activities ceased in 1983 with the closing of the by-product coke and gas plant. Beginning in 1983, the property was under land contract with Wisconsin Wrecking Company, who operated a scrap and salvage operation on the northern portion of the Uplands Area and used the property to manage recyclable materials (e.g., bricks, steel, asphalt, and concrete), some of which remained stockpiled at the Site after termination of the land contract in 2003.

Current Conditions

We Energies acquired the Uplands Area property in May 2017, and currently uses the property to stockpile crushed brick, crushed concrete, brick fines, concrete fines, and fill.

The Uplands Area is bounded by the Kinnickinnic River along the CS Area and FT Area to the east and southeast. Current improvements to the Kinnickinnic River shoreline along the Uplands Area property boundary include a bulkhead composed of wooden piles with concrete pile cap, steel sheet piling, rubble and concrete posts, and vegetated earthen bank. The steel sheet piling runs along the rail car ferry slip shoreline, except for the length of the westernmost extent of the rail car ferry slip. Attachment 4 provides the locations and extent of each shoreline improvement type at the Uplands.

All above-grade structures associated with the former facilities that operated on the Uplands Area have been demolished. Some subsurface structures remain in-place, including some former building foundations and process piping. The majority of Uplands Area soils are not covered by impervious surfaces. Attachment 5 shows former building foundations which have been removed or partially removed as of February 18, 2019. Attachment 6 shows major process piping remaining in the subsurface.

Previous removal actions have taken place at the Site and are also described in section III. A. of this memorandum.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Historical industrial activities described in Section II. A. 3 of this Action Memorandum have resulted in the release of hazardous substances, pollutants, and contaminants to the environment. Chemical analysis of soils and field observations conducted during previous investigations and during EE/CA Support Sampling Activities were used to establish the presence of hazardous substances and coal tar likely containing hazardous substances at the Uplands Area.

Table 4 of the EE/CA Data Report provides the soil analytical results for samples collected during EE/CA Support Sampling activities in comparison to soil RCLs. Table 1 of the EE/CA Support Sampling Plan is a summary of previously collected soil analytical data in comparison to soil RCLs.

Attachment 7 provides a table of field observations of interest, including the soil boring identification number, depth interval in feet bgs of the observation, a description of the observation from soil boring and test trenching logs, and the categorization of the observation. Field observations categorized as NAPL blebs, oil-coated/oil-wetted, and hard tar were then used to model the extent of source material at the Uplands Area. Attachment 8 shows the modeled extent of coal tar. The volume of material targeted for the removal action is estimated from the model at 73,490 cubic yards of coal tar and soils.

5. NPL status

The Site has not been proposed for the NPL. The Site is a Superfund Alternative Site.

6. Maps, pictures, and other graphic representations

Graphic representations and tables are referenced throughout and included as attachments.

B. Other Actions to Date

1. Previous Actions

Previous actions have taken place at the Site and are summarized as follows:

Removal Action (2003 – 2004)

On February 14th, 2003, EPA entered into an Administrative Order by Consent (“2003 Removal Order”, U.S. EPA Docket No. V-2-03-C-733) with Cliffs Mining Company, Water Street Holdings, LLC, and Wrecking, LLP for performance of a removal action to address threats from above ground facilities at the Site. The actions taken under the 2003 Removal Order are detailed in the Summary of Removal Actions at the Milwaukee Solvay Coke and Gas Company Site report, dated March 2005, prepared by Earth Tech, Inc. on behalf of Water Street Holdings, pursuant to the 2003 Removal Order.

Removal activities included the removal of friable and non-friable asbestos containing material (ACM), material in aboveground storage tanks (ASTs), surface residues, loose materials, hazardous and non-hazardous wastes, sewer abandonment, and demolition of buildings associated with the former coke and manufactured gas facility considered to be in poor structural condition. The total project cost for the removal action was \$3,493,396.14.

Asbestos Abatement (2008)

Approximately four cubic yards of readily friable asbestos were identified in July 2008 and removed in September 2008 following an *Asbestos Survey* completed by NRT in 2007.

Raze Action (2015)

In September 2015, the City of Milwaukee filed a petition with the Circuit Court for Milwaukee, requesting a raze order for the seven remaining structures at the Site, which included three former structures on the northern portion of the Site, two chimneys and a former garage building located on the central portion of the Site. The circuit court granted the raze order (Case No. 15 CV 007603).

The former Site owner razed the three buildings located on the northern portion of the site in 2016. The debris from the buildings were left on Site including asbestos containing roofing materials scattered throughout the rubble piles. The raze order was rescinded when We Energies acquired the Site.

NTCRA Site Preparation (2017)

Task 5 – Site Security, Maintenance, and Preparation of the SOW for the 2017 ASAOC required We Energies to implement any measures necessary to secure, maintain, and prepare the Site for implementation of the removal action. Activities are summarized as follows:

Site Fencing

Security fencing was installed around the perimeter of the Upland Area, with the exception of the extent of the property boundary along the shoreline of the Kinnickinnic River.

Asbestos Abatement

We Energies conducted an asbestos survey in 2017. At the request of WDNR and City of Milwaukee Department of Neighborhood Services Environmental/Inspection staff, this survey

identified suspect materials that were not previously assessed, friable and non-friable ACM within and around previously demolished building foundations and assessed the remaining structures and building materials prior to demolition/processing activities. Off-site disposal of ACM from the Site occurred between June 20, 2017 and August 7, 2017. 7,892 tons of non-friable co-mingled material and 2,810 tons of friable co-mingled material were removed.

Cyanide Contaminated Soils

Blue-stained soils are indicative of potential cyanide contamination. Blue-stained soils from two surficial areas identified in previous investigations conducted at the Site were excavated on December 15, 2017 and placed into roll-off dumpsters for disposal at Waste Management's Metro Landfill in Franklin, Wisconsin.

Coal Tar and Tar Impacted Soils

A partial tar tank on the northeastern portion of the property was removed and the area surrounding the tar tank was evaluated on November 13, 2017. An area of hardened tar measuring approximately 15 feet in length, approximately 5 feet in width and approximately one foot thick was observed and removed from the area immediately adjacent to the east side of the pad and foundation. The tar tank and impacted soils were placed in roll-off dumpsters and disposed of at Waste Management's Laraway Landfill in Joliet, Illinois.

Coal and Coke Waste

Various above ground piles of coal and coke waste located throughout the Uplands were removed and disposed. Approximately 9,700 tons of coal and coke waste were removed.

Above Ground Stockpiles

Two previously identified above ground stockpiles of asphalt, totaling approximately 6,500 tons, were removed and either disposed of or recycled. Approximately 2,300 tons of asphalt fines were beneficially recycled while approximately 4,200 tons were disposed.

Miscellaneous Site Waste Materials

The following materials were removed from the Site during site preparation activities:

- 90 tons of rubber (conveyor belt and tires) were recycled
- 650 tons of steel were recycled
- 30 tons of household trash and debris were disposed
- 150 tons of treated rail road ties were disposed

2. Current Actions

There are no current actions at the Site.

C. State and Local Authorities' Role

1. State and local actions to date

Regulatory involvement at the Site began in 2001. EPA, WDNR, and the City of Milwaukee conducted a reconnaissance to evaluate Site conditions in preparation for a Site Assessment. WDNR has been the support agency for subsequent response actions at the Site.

2. Potential for continued State/local response

EPA approved the EE/CA Report in consultation with the WDNR. EPA anticipates that the Site will be transferred to the State of Wisconsin for remaining necessary response actions following completion of the NTCRA described herein.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Conditions present at the Site constitute a threat to public health, welfare or the environment and meet the criteria for a non-time-critical removal action as provided for in the NCP, 40 C.F.R. § 300.415(b)(1), based on the factors in 40 C.F.R. § 300.415(b)(2). These factors include, but are not limited to, the following:

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants

Since the Site is not abandoned and We Energies has ongoing operations on the Site, there is actual or potential exposure to on-site workers and visitors. In addition to those with access to the Site, there is the potential for exposure of trespassers to hazardous substances. The threat of exposure to trespassers is elevated since the Site is not entirely secured and is located in an urban area. The Uplands Area is unsecured along the Kinnickinnic River and may be accessible to humans and wild animals. Humans and wild animals can gain access to the Site and can be exposed to hazardous substances. Humans and animals may be exposed to benzene, and PAHs such as benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and other organics (dibenzofuran and naphthalene). As previously noted, the Uplands Area is of redevelopment interest and is currently zoned for Industrial-Office use by the City of Milwaukee. Future development may potentially result in further exposure of humans to hazardous substances, pollutants, or contaminants at the Site, both in surface and subsurface soils.

Acute inhalation exposure to PAHs such as benzo(a) anthracene, benzo(b) fluoranthene, or benzo(a) pyrene may cause eye, skin, and respiratory tract irritation. Repeated exposures to benzo(a)pyrene may result in an allergic skin reaction. Ingestion may result in irritation of the digestive tract. Long term chronic exposure to these compounds may cause reproductive or fetal effects. EPA has categorized these compounds as possible human carcinogens (Group 2A or 2B), with all 3 shown to be mutagenic in laboratory experiments. Benzene is a known human carcinogen. Long-term exposure to high levels of this compound in the air can lead to leukemia and cancers of the blood-forming organs.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.

NAPL, NAPL blebs, oil-coated/oil-wetted materials, and hard tar ranging from 0' to 21' below-ground-surface in soil were identified, likely containing elevated levels of contaminants exceeding the State's RCLs and EPA RMLs as described above during the RI and EE/CA Support Sampling activities. Contaminated soil potentially could come in contact with people working on-site and nearby. Also, an occasional trespasser may come in contact with contaminated soil in the surface either through dermal contact or inhalation given the nearest residential neighborhood is 0.14 miles from the Uplands Area.

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

Migration could occur as a result of wind action during dry periods, which could pose a breathing hazard. Such wind action could also lead to deposition of materials in uncontaminated areas. Migration of contaminants in surface soil could also occur through surface water flow or groundwater flow during rain events and wet periods due to the high levels of PAHs and benzene found in some of the samples.

IV. ENDANGERMENT DETERMINATION

Given the current conditions at the Site, the future potential development/use of the Site, and the contaminants of concern at the Site, actual releases of hazardous substances to the Uplands Area, if not addressed by implementing and completing the response actions proposed in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

EPA oversaw the completion of the EE/CA in accordance with the NCP, 40 C.F.R §300.415, and applicable guidance. Based on the information contained in the EE/CA report and the Administrative Record, the Removal Action described in Section V.B.1 below is proposed for the Uplands Area.

A. Proposed Actions

Five removal action alternatives were assessed and compared based on their effectiveness, implementability, and cost consistent with EPA's "Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA." The proposed action is Removal Action Alternative-04 (RAA-04), which is described in further detail below.

1. Proposed Action Description

- a.* Develop and implement a Site-specific Health and Safety Plan, including an Air Monitoring Plan, and a Site Emergency Contingency Plan;
- b.* Prepare a detailed work plan to accomplish the project in the most effective, efficient and safe manner;

- c. Complete a pre-design investigation. A pre-design investigation is necessary in part to define the extent of principal threat waste in the subsurface, provide waste disposal characterization data, and to complete a treatability study to establish performance criteria and develop a reagent capable of meeting material performance standards for the in-situ soil stabilization/solidification component of the removal action. Performance standards will at a minimum include a maximum hydraulic conductivity and a minimum unconfined compressive strength.
- d. *In-Situ Soil Stabilization/Solidification*
In-situ soil stabilization/solidification will be conducted to address principal threat wastes at the Uplands Area. ISS would be completed over an approximately 2.1-acre area of approximately 73,490 cubic yards of waste materials and soil. Final treatment volumes and areas are dependent upon definition of the extent of principal threat waste to be completed during the pre-design investigation, and subject to further refinement during the design phase. Soils targeted for treatment are source materials defined as visual observations of pure product, NAPL blebs, oil-coated/oil-wetted soils, and hard tar. Pipe gaskets and pipe insulation that contain ACM will be segregated and properly disposed off-site when encountered during the removal activities.
- e. *Potentially Cyanide-Contaminated Material*
Soil and other site materials (e.g., brick) identified as potentially cyanide contaminated (blue-stained) are generally surficial and will be removed for off-site disposal when encountered.
- f. *Targeted Removal of Remnant Piping*
Remnant piping that may pose a preferential contaminant migration pathway will be removed. The removal of approximately 600 feet of the east to west segment of pipe #4 and an additional approximately 100 feet of ancillary outfall piping (pipes #1, #2, #2A, #3, #4A, #5, #6, #7 and #8) identified along the Kinnickinnic River will be conducted. The anticipated removal volume for these select remnant pipes is approximately 2,500 cubic yards of material.
- g. *Direct Contact Surface Barrier*
The Site does not have surface improvements to prevent direct contact with soils containing COCs above industrial RCLs. A direct contact surface barrier will be placed where site soils in the 0-4' direct contact zone exceed industrial RCLs.

The surface barrier installation will, at a minimum, consist of direct placement of 18 inches of fill and six inches of topsoil on the existing grade, feathered to match adjacent grades, and vegetated to reduce soil erosion.

Material used for the surface barrier will consist of material that is below the industrial soil RCLs or imported from non-contaminated sites/sources and no more permeable than the current soil so as not to increase surface water

infiltration. Alternative direct contact barrier approaches, including gravel, asphalt and proposed structures, will be evaluated during the removal action design phase of the project and will in part consider the timing of the potential property development and in consultation with EPA and WDNR. The final cover and grade elevations will be coordinated to the extent practical with planned redevelopment activities if timing and sequencing allow. Site redevelopment may also incorporate green infrastructure concepts.

The industrial RCLs are the goals for this action, and they were calculated from the Wisconsin Soil RCLs Spreadsheet (DNR-RR-052d, December 2017) which is consistent with Wisconsin NR 720 Wis. Admin. Code RCLs. The selected Removal Goals are as follows in Table 2:

Table 2

Constituents of Concern	Cancer Risk > 1 X 10⁻⁶ HI > 1 (mg/kg)
VOCs	
Benzene	7.07 ^{ca}
PAHs	
Benz[a]anthracene ¹	20.8 ^{ca}
Benzo[a]pyrene ¹	2.11 ^{ca}
Benzo[b]fluoranthene ¹	21.1 ^{ca}
Benzo[k]fluoranthene ¹	211 ^{ca}
Chrysene ¹	2,110 ^{ca}
Dibenz[a,h]anthracene ¹	2.11 ^{ca}
Indeno[1,2,3-cd]pyrene ¹	21.1 ^{ca}
Naphthalene	24.1 ^{ca}
Inorganics	
Arsenic	8 ^{bk}
Cyanide	195 ^{nc}

Notes

CR – Cumulative Carcinogenic Risk

ca – Carcinogenic Risk Based

nc – Noncarcinogenic Risk Based

HI – Hazard Index Risk

bk – Wisconsin state-wide background threshold value

1. Included in calculation of benzo(a)pyrene toxic equivalents

g) Groundwater Monitoring Well Network

The groundwater monitoring well network will be reassessed following completion of the ISS of principal threat wastes at the Site.

h) Post-Removal Site Control

Post-removal site control measures will be implemented as necessary to ensure ongoing effectiveness of the remedy and protectiveness of public health, welfare, and the environment from remaining risks at the Uplands Area. The Post-

Removal Site Control Plan will include plans for groundwater monitoring, monitoring and maintenance of the direct contact surface barrier, institutional controls, and other continuing obligations, as appropriate.

The removal actions will be conducted in a manner not inconsistent with the NCP. The threats posed by uncontrolled substances considered hazardous meet the criteria listed in NCP Section 300.415(b)(2), and the response actions proposed herein are consistent with any long-term remedial actions which may be required. The removal action will be conducted in a manner not inconsistent with the NCP. The OSC has initiated planning for provision of post-removal Site control consistent with the provisions of Section 300.415(l) of the NCP.

Off-Site Rule

All hazardous substances, pollutants, or contaminants removed off-site pursuant to this removal action for treatment, storage, and disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by EPA, with the U.S. EPA Off-Site Rule, 40 C.F.R. § 300.440.

2. Contribution to Remedial Performance

In accordance with Section 300.415(d) of the NCP, EPA expects that this removal action shall, to the extent practicable, contribute to the efficient performance of any anticipated long-term remedial action that may take place in the future at the Site.

3. Engineering Evaluation/Cost Analysis

Per the 2017 ASAOC, and per the September 15th, 2017 Approval Memorandum, EPA oversaw We Energies in the performance of an Engineering Evaluation/Cost Analysis (EE/CA), which was completed and released for public comment in December 2018. The EPA-approved EE/CA Report identified Removal Action Alternative-04 as the preferred remedy.

Removal Action Alternative-01

RAA-01 proposed no further action. RAA-01 was included as a baseline for comparison to other removal action alternatives.

Removal Action Alternative-02

RAA-02 proposed excavation and off-site disposal of source materials, targeted excavation and off-site disposal of blue-stained soils and materials which are indicative of potential cyanide contamination, targeted removal of sewer and/or piping remaining from previous industrial use of the site, installation of a direct contact barrier over all remaining soils exceeding Wisconsin soil RCLs for industrial direct contact, restoration of the Uplands Area to surrounding grades and conditions; and post-removal site control measures including maintenance of the soil cover, installation of groundwater monitoring wells, and implementing institutional controls to prevent future use of the property incompatible with the protection of human health and the environment.

Removal Action Alternative-03

RAA-03 differed from RAA-02 only in that it proposed a one-time treatment of the residual soils remaining after the excavation with a chemical in-situ reagent.

Removal Action Alternative-04 (Proposed Alternative)

RAA-04 is the proposed alternative and is described in detail in Section V.B.1.

Removal Action Alternative-05

RAA-05 proposed excavation and off-site disposal of coal-tar impacted materials in the form of pure product, oil-coated/oil-wetted materials, and NAPL blebs not to exceed depths of 2 feet below the ground water table; targeted removal of sewer and/or piping remaining from previous industrial use of the site; installation of source material recovery wells; covering all remaining contaminated soil exceeding Wisconsin soil RCLs with a 6" barrier to prevent direct contact; restoration of the Uplands Area to surrounding grades and conditions; and implementation of post-removal site control measures including the installation of a groundwater monitoring well network; and implementing institutional controls to prevent future use of the property incompatible with protection of human health and the environment.

4. Compliance with Applicable or Relevant and Appropriate Requirements ("ARARs")

Pursuant to 40 CFR 300.415(j), the proposed removal action set forth in this memorandum will comply with all federal and state applicable or relevant and appropriate environmental and health requirements, to the extent practicable considering the exigencies of the situation. A preliminary list of federal and state ARARs and guidance to-be-considered ("TBCs") identified for the proposed removal action is included in Attachment 9.

5. Project Schedule

EPA expects that the proposed removal action will be implemented over the summer and fall of 2019.

6. Public Participation

The availability of the EE/CA Report and comment period dates were published in a display ad in the Milwaukee Journal Sentinel on December 11, 2018. The comment period ran from December 17, 2018 – January 18, 2019. This information also appeared on the Site's web page at www.epa.gov/superfund/solvay-coke.

The EE/CA Report was published for public comment on December 18th, 2018. EPA received written comments (via electronic mail) during the public comment period. In total, about 20 comments were received from 5 different people or organizations. EPA carefully evaluated the comments and developed a Responsiveness Summary, found herein as Attachment 10. Copies of all the comments received are included in the Administrative Record for the Site. The Administrative Record Index is included as Attachment 11.

B. Estimated Costs

Estimates of capital costs to implement each alternative are presented in detail in the EE/CA Report. The estimated total capital cost to implement RAA-04 is \$15,864,900. Table 3 below summarizes the total estimated capital costs of each evaluated alternative and the source of major capital costs associated with each alternative.

Table 3

Removal Action Alternative	Total Estimated Capital Cost	Major Capital Costs
RAA-01	\$0	
RAA-02	\$25,724,900	<ul style="list-style-type: none"> • Temporary shoring to support excavations • Transportation and disposal of excavated materials • Direct contact surface barrier material and placement
RAA-03	\$25,377,800	<ul style="list-style-type: none"> • Temporary shoring to support excavations • Transportation and disposal of excavated materials • Direct contact surface barrier material and placement
RAA-04 (Proposed Alternative)	\$15,864,900	<ul style="list-style-type: none"> • In-situ soil stabilization/solidification • Direct contact surface barrier material and placement
RAA-05	\$11,083,300	<ul style="list-style-type: none"> • Transportation and disposal of excavated materials • Direct contact surface barrier material and placement

EPA carefully considered the comments received on the EE/CA Report and has compared alternatives RAA-01 through RAA-05, consistent with EPA's Guidance on Conducting Non-Time-Critical Removal Actions. Alternatives were evaluated for effectiveness, implementability, and cost.

Of the alternatives evaluated in the EE/CA Report, EPA considers that the proposed RAA-04 provides the appropriate balance between evaluation criteria. RAA-04 is consistent with the anticipated future industrial land use of the Site, is the most effective alternative in the short-term, complies with ARARs, can achieve long-term effectiveness and permanence, provides for reduction of mobility of principal threat wastes through treatment, and does so cost-effectively in comparison to the other alternatives evaluated through the EE/CA process. The EE/CA Report provides a more detailed comparison of the alternatives.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Inaction or delay in action may result in human exposure to hazardous substances in contaminated soils present at the Site.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

Information concerning the confidential enforcement strategy for this Site is contained in the Enforcement Confidential Addendum (Attachment 12).

IX. RECOMMENDATION

This decision document represents the selected non-time-critical removal action alternative RAA-04 for the Uplands Area of the Solvay Coke and Gas Company Site, located in Milwaukee County, Milwaukee, Wisconsin. This decision document was developed in accordance with CERCLA as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site.

Conditions at the Solvay Coke and Gas Site meet the NCP Section 300.415(b)(2) criteria for a removal and I recommend your approval of the proposed removal action. You may indicate your decision by signing below.

5/17/2019

APPROVE:

X 

Douglas Ballotti, Director
Superfund & Emergency Management Div.
Signed by: SAMUEL BORRIES

ATTACHMENTS

Attachment 1 – Site map

Attachment 2 – Site Subareas

Attachment 3 – EJ Screen Report

Attachment 4 – Shoreline Improvements

Attachment 5 – Foundation Removal

Attachment 6 – Subsurface Piping

Attachment 7 – NAPL Observations

Attachment 8 – Extent of Source Material

Attachment 9 – Preliminary List of ARARs, TBCs

Attachment 10 – Responsiveness Summary

Attachment 11 – Administrative Record Index

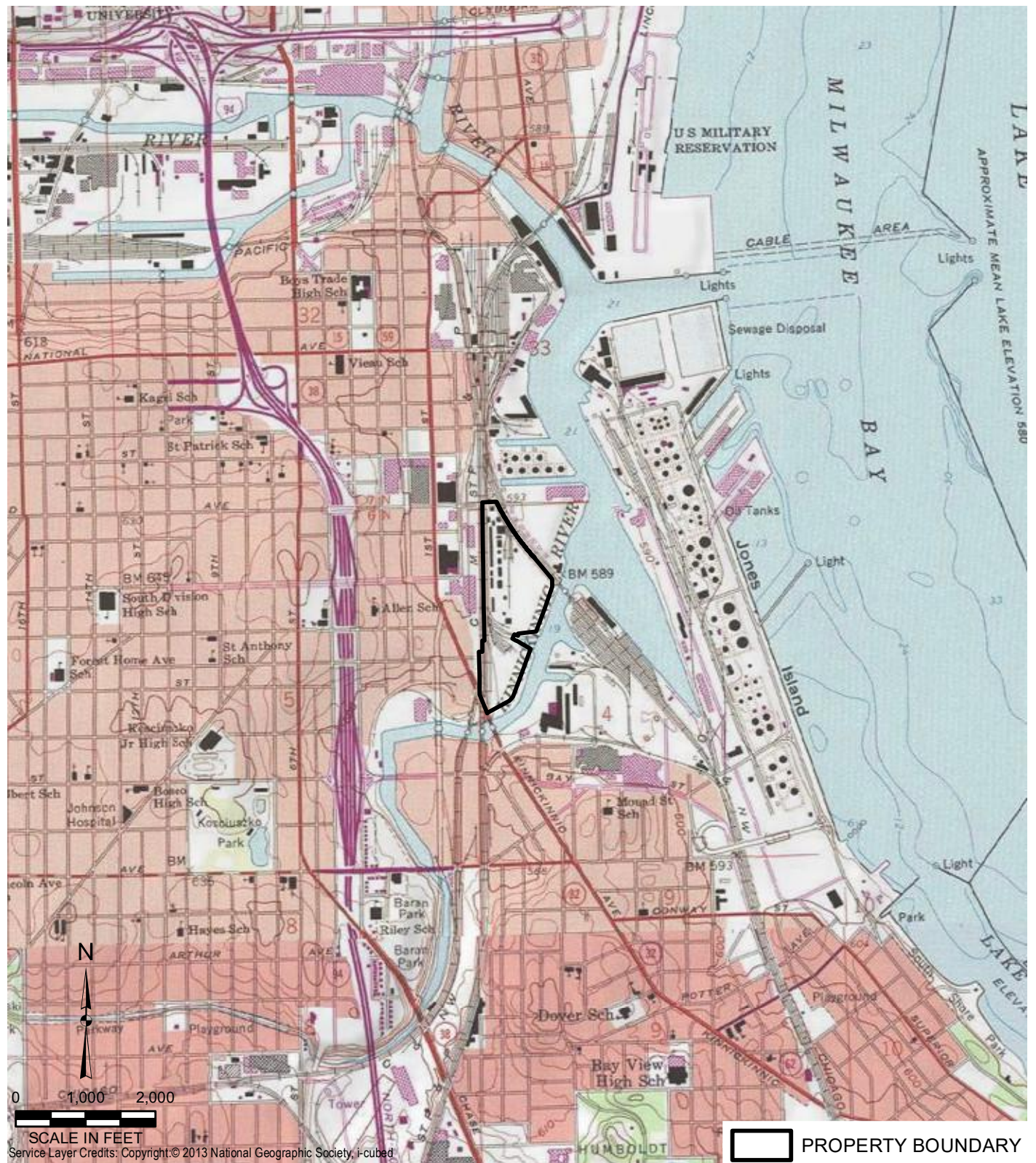
Attachment 12 – Enforcement Confidential Addendum

Attachment 13 – 2002 Action Memorandum

Attachment 1

Site Map

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin



SITE LOCATION MAP

ENGINEERING EVALUATION AND COST ANALYSIS REPORT
FORMER MILWAUKEE SOLVAY COKE AND GAS SITE
311 EAST GREENFIELD AVENUE
MILWAUKEE, WISCONSIN

FIGURE NO: 1



DRAWN BY/DATE:
TDC 6/15/18
REVIEWED BY/DATE:
JMH 6/15/18
APPROVED BY/DATE:
JMH 6/15/18

Attachment 2

Site Subareas

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

**HISTORICAL SITE FEATURES
(1963 AERIAL PHOTOGRAPH BACKGROUND)**

ENGINEERING EVALUATION AND COST ANALYSIS REPORT
FORMER MILWAUKEE SOLVAY COKE AND GAS SITE
311 EAST GREENFIELD AVENUE
MILWAUKEE, WISCONSIN



Attachment 3

EJ Screen Report

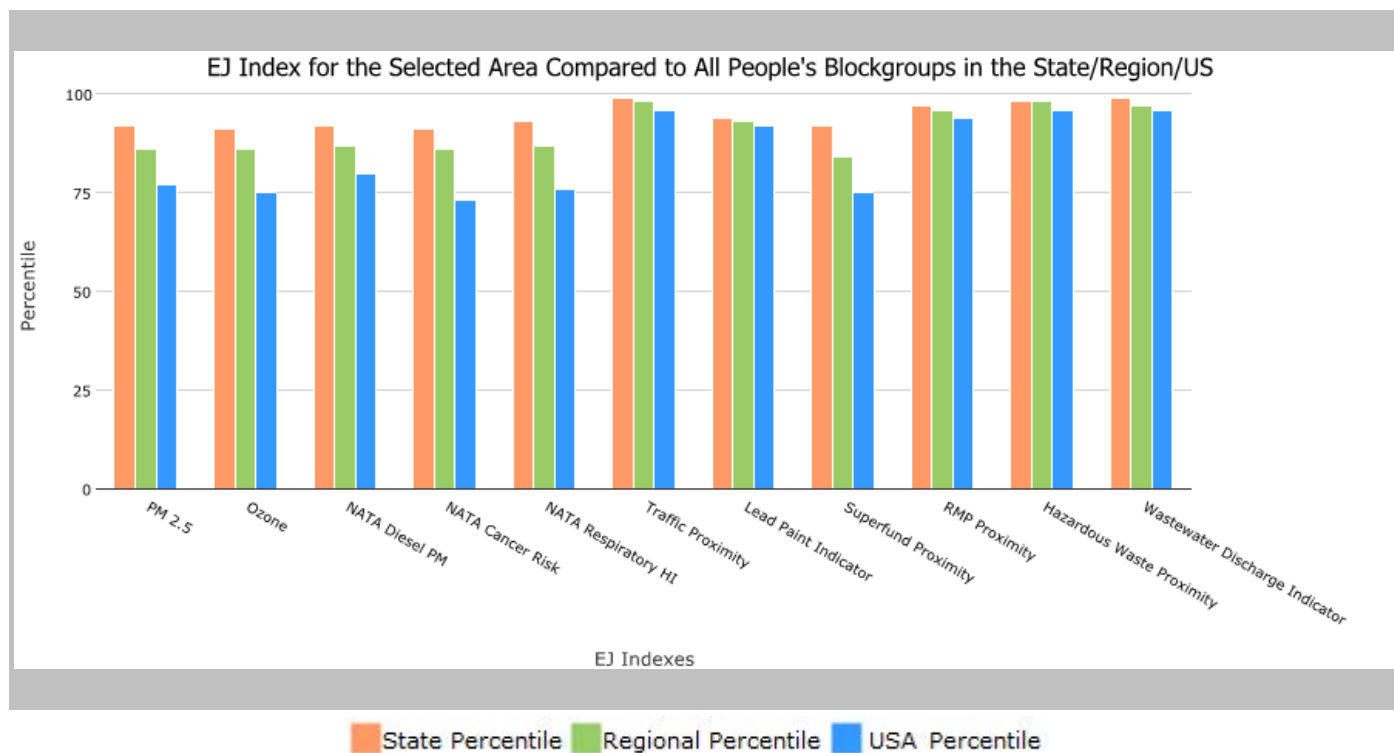
Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

Blockgroup: 550790165003, WISCONSIN, EPA Region 5

Approximate Population: 819

Input Area (sq. miles): 0.34

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	92	86	77
EJ Index for Ozone	91	86	75
EJ Index for NATA* Diesel PM	92	87	80
EJ Index for NATA* Air Toxics Cancer Risk	91	86	73
EJ Index for NATA* Respiratory Hazard Index	93	87	76
EJ Index for Traffic Proximity and Volume	99	98	96
EJ Index for Lead Paint Indicator	94	93	92
EJ Index for Superfund Proximity	92	84	75
EJ Index for RMP Proximity	97	96	94
EJ Index for Hazardous Waste Proximity	98	98	96
EJ Index for Wastewater Discharge Indicator	99	97	96

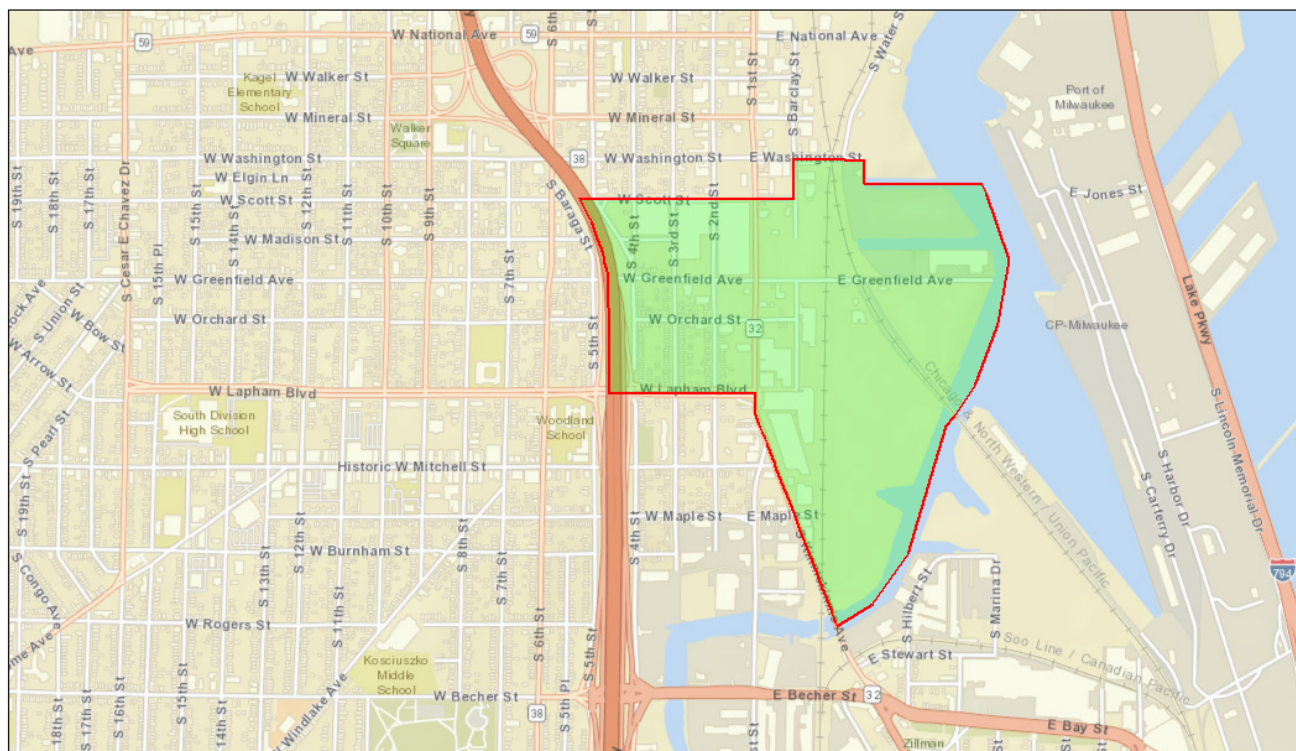


This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

Blockgroup: 550790165003, WISCONSIN, EPA Region 5

Approximate Population: 819

Input Area (sq. miles): 0.34



April 3, 2019

Selected Blockgroup

0 0.15 0.3 0.6 mi
0 0.25 0.5 1 km
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

Sites reporting to EPA

Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	2

EJSCREEN Report (Version 2018)

Blockgroup: 550790165003, WISCONSIN, EPA Region 5

Approximate Population: 819

Input Area (sq. miles): 0.34

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	11	9.43	83	10.8	41	9.53	77
Ozone (ppb)	41	41.2	37	42.6	18	42.5	35
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	1.28	0.657	92	0.932	70-80th	0.938	70-80th
NATA* Cancer Risk (lifetime risk per million)	34	29	81	34	50-60th	40	<50th
NATA* Respiratory Hazard Index	2.1	1.3	94	1.7	70-80th	1.8	60-70th
Traffic Proximity and Volume (daily traffic count/distance to road)	4200	300	99	370	98	600	97
Lead Paint Indicator (% Pre-1960 Housing)	0.94	0.37	97	0.38	97	0.29	98
Superfund Proximity (site count/km distance)	0.041	0.094	58	0.12	43	0.12	44
RMP Proximity (facility count/km distance)	4.5	0.87	97	0.81	98	0.72	98
Hazardous Waste Proximity (facility count/km distance)	18	1.7	99	1.5	99	4.3	97
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.26	1.3	98	4.2	92	30	93
Demographic Indicators							
Demographic Index	68%	24%	94	28%	92	36%	87
Minority Population	80%	18%	94	25%	91	38%	84
Low Income Population	56%	30%	89	32%	85	34%	83
Linguistically Isolated Population	0%	2%	59	2%	58	4%	44
Population With Less Than High School Education	15%	9%	84	10%	76	13%	66
Population Under 5 years of age	9%	6%	86	6%	83	6%	81
Population over 64 years of age	5%	15%	5	15%	7	14%	9

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

Attachment 4

Shoreline Improvements

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

Attachment 5

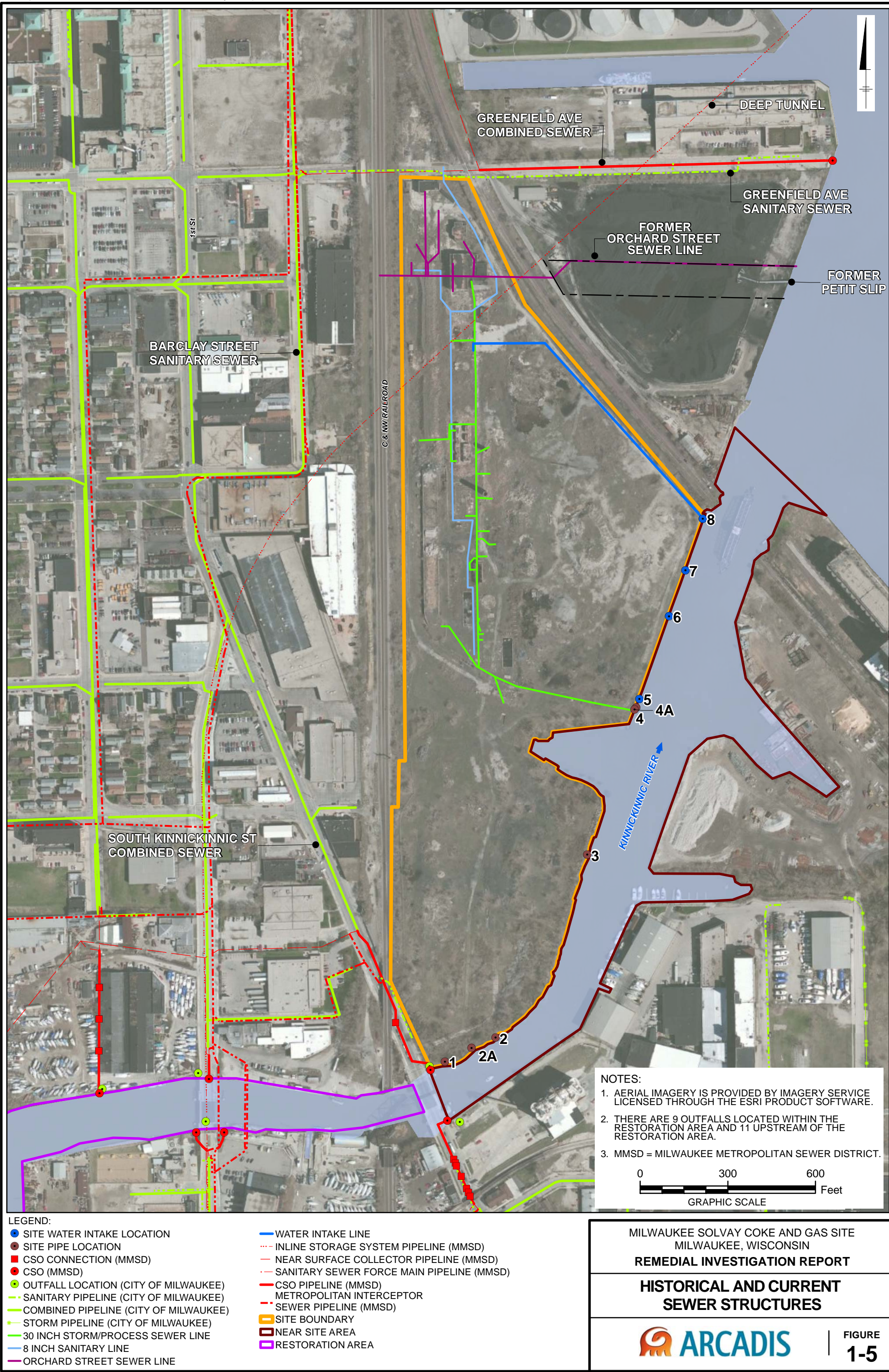
Foundation Removal

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

Attachment 6

Subsurface Piping

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin



Attachment 7

NAPL Observations

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

Table 1 - NAPL Observations

Boring ID	Depth Interval feet bgs	Description of NAPL Indicator	Category of Indicator
Former Coke and Gas Production Area (Locations Completed in and Prior to 2008) ¹			
CG-SB04	8-9	Heavy sheen, odors	Sheen
CG-SB05	6-7	Slight odor, sheen, staining	Staining
CG-SB07B	8-13.2	Strong tar odor, sheen, staining	Staining
CG-SB09A	5.5-10	Slight tar odor, sheen	Sheen
CG-SB09B	7-18	Slight tar odor, sheen at 9.3+	Sheen
	12-12.6	Sheen	Sheen
CG-SB16	18-20.5	Strong odors, tar staining	Staining
CG-SB18	4-6.1	Tar odor, staining	Staining
	8-13	Sheen, slight odor	Sheen
CG-SB20	6-6.7	Sheen, staining	Staining
CG-SB21	12-16	Slight tar odor, sheen, free product	Oil-Wetted
CG-SB23	6-6.8	Strong tar and petroleum odor, staining	Staining
CG-SB23	9-10.2	Staining	Staining
CG-SB26	9-9.1	Sheen, slight odor	Sheen
CG-SB30A	5-5.3	Sheen, odor	Sheen
CG-SB30B	4.5-6.2	Strong odors, sheen, staining	Staining
CG-SB31	6.7-7	Sheen	Sheen
CG-SB32	6.6-7.1	Sheen	Sheen
CG-SB36	6-6.5	Sheen	Sheen
CG-SB37	4-6.1	Strong odor, staining	Staining
	21-22.7	Sheen, staining, odors	Staining
CG-SB38	21-22.7+	Sheen, staining, odors	Staining
MW-07	8-9.1	Sheen, moderate odors, staining	Staining
MW-07 (well screen)	NA	NAPL Blebs 12-14 feet below ground surface based on well construction log of saturated soil conditions	NAPL Blebs
MW-07 (well development)	NA	0.5 gallon of NAPL recovered during development of MW-07	NAPL Bleb
CG-TT03 (East of Rubble Pile)	6-9	Tar staining/NAPL and odor	NAPL Blebs
CG-TT03A	7	Sheen on water. Perched water at 7 ft	Sheen
CG-TT09	NA	Sheen on water	Sheen

Table 1 - NAPL Observations

Boring ID	Depth Interval feet bgs	Description of NAPL Indicator	Category of Indicator
CG-TT12	NA	Sheen and DNAPL on water	NAPL Blebs
CG-TT13	NA	Sheen on water	Sheen
CG-TT14	NA	Sheen on water	Sheen
CG-TT16	NA	Sheen on water	Sheen
S04GP	4-8	Oily material	Oil-Coated/Wetted
S08GP	4	Oily, stained material at 4 ft, odor detected, refusal at 4 ft	Staining
S09GP	4-5	Oily sheen	Sheen
SB-A-01	7-8	Coal tar odor and oily sheen	Sheen
SB-A-03	0.5-6	Solidified coal tar	Hard Tar
SB-A-12	4-5	Stained	Staining
SB-A-14	0-2	Strong odor, stained	Staining
	4-6	Strong odor, stained	Staining
SB-A-15	4-6	Stained	Staining
SB-A-17	2-5	Stained, strong odor	Staining
SB-A-19	2-6	Stained	Staining
SB-A-21	2-2.5	Apparent coal tar	Oil-Coated/Wetted
SB-A-23	4-5	Apparent solidified coal tar	Hard Tar
SB-A-24	4-5	Apparent solidified coal tar, sheen	Hard Tar
SB-A-25	5-8	Oily sludge, sweet oil odor, sheen	Oil-Coated/Wetted
S33GP	5	Oily sheen noted at 5 ft, odor detected	Sheen
S34GP	6	Oily sheen noted at 6 ft, odor detected	Sheen
Former Coke and Gas Production Area (Locations Completed in 2012 and 2015) ¹			
CG-SB41	2-5	Black staining, black taffy like tar at 4 ft, moderate MGP-like odor	Hard Tar/Blebs
	5-13	Black staining, little NAPL blebs, strong odor, elevated PID (159 ppm)	NAPL Blebs
	13-16	Sheen in water, little NAPL blebs with trace blebs at 15.5-16 ft	NAPL Blebs
CG-SB42	15-16	Trace sheen and moderate NAPL like odor	Sheen
	25-26	Moderate sheen, no odor	Sheen
CG-SB43	10-15	Little NAPL blebs to blebs throughout, sheen, moderate staining at 11-15 ft	NAPL Blebs
CG-SB44	14-16	Little NAPL blebs throughout, sheen and coal-tar like odor	NAPL Blebs
	16-18	Moderate NAPL throughout, sheen, strong odor	Oil-Coated/Wetted
	18-21	Coated with NAPL/coal tar material	Oil-Coated

Table 1 - NAPL Observations

Boring ID	Depth Interval feet bgs	Description of NAPL Indicator	Category of Indicator
CG-SB45	12-14	Faint to moderate odor (MGP like), green staining	Staining
	14-15	Moderate NAPL blebs (30% of pore space NAPL), sheen, odor, staining	NAPL Blebs
	17-18	Little black staining, MGP like odor, sheen	Staining
	20-21	Trace black staining at 21 ft	Staining
	42-43	Moderate NAPL staining, odor	Staining
CG-SB45NW	15-17	NAPL impacts at 17.2-17.3 ft, sheen with blebs	NAPL Blebs
CG-SB46	15-16	Petroleum like and MGP like odor, trace NAPL blebs, little sheen	NAPL Blebs
CG-SB47	5-7	Moderate petroleum odor, trace sheen from 5-7 ft	Sheen
	10-15	Elevated PID (87.4 ppm), approximately 5mm of fine to medium sand lenses at 11.5 ft with odor and trace sheen	Sheen
	15-20	Elevated PID (88.3, 581, 101 ppm), little dark staining and petroleum-like odor at 17-17.5 ft	Staining
CG-SB48	10-15	Staining and odor at 10-14 ft, elevated PID (225, 60, 72.4 ppm)	Staining
	15-17	Sheen, odor, elevated PID (57.3 ppm)	Sheen
CG-SB49	4-14	Staining, partially saturated to saturated NAPL	Oil-Coated/Wetted
CG-SB50	7-13	Sheen at 7-8 ft and 10-13 ft	Sheen
CG-SB51	4-8.5	Sheen at 5-7 ft	Sheen
CG-SB58	5-6	Strong odor, sheen (possible NAPL)	NAPL blebs
CG-MW22SE	0-5	Some odor, staining at 4-5 ft	Staining
	5-8	Some sheen, some odor	Sheen
	8-10	Sheen, NAPL blebs	NAPL Blebs
MW-22	12-13	Staining, some odor	Staining
	15-17	Sheen and NAPL blebs, staining, odor	NAPL Blebs
	17-18	Some odor and staining at 17-18 ft	Staining
MW-22D	8-9	Staining, odor	Staining
	13-15	Sheen, odor and some NAPL blebs	NAPL Blebs
	15-18	Staining, odor	Staining
CG-MW24D	12-12.5	Sheen	Sheen
	15-17	Some staining, some odor	Staining
MW-26D	5-6	Staining, odor	Staining
	10-14	Staining at 11-12 ft	Staining
	14-15	Possible sheen at 15 ft	Sheen

Table 1 - NAPL Observations

Boring ID	Depth Interval feet bgs	Description of NAPL Indicator	Category of Indicator
MW-27	10-12	Staining, some sheen, odor	Staining
CG-MW27D	10-15	Sheen, odor, trace NAPL blebs	NAPL Blebs
MW-28D	8.5-9.5	Sheen, NAPL blebs	NAPL Blebs
Former Coal Storage Area (Locations Completed in and prior to 2008) ¹			
CS-SB22	9-10.7	Sheen, moderate petroleum odor at 9-9.5 ft	Sheen
S25GP	6	Oily water observed at 6 ft bgs	Sheen
SB-B-06	2-5	Black, with free oily material, pungent, aromatic odor	Oil-Wetted
SB-B-26	2-4	Black-stained, with concrete and gravel	Staining
SB-B-32	4-8	Dark stained	Staining
SB-B-37	2-8	Dark stained, sheen visible, elevated PID (up to 100 ppm)	Staining
Former Coal Storage Area (Locations Completed in 2012) ¹			
CS-SB27	5-6	Very faint sweet odor, possible black staining	Staining
CS-MW23D	9-12	Staining	Staining
MW-28D	8.5-9.5	Sheen and NAPL blebs	NAPL Blebs
Former Furnace and Tannery Area (Locations Completed in 2012 and 2015) ¹			
FT-SB26	3-4	Staining, odor	Staining
FT-SB32 ²	1.5-4.5	Tar-like material with sheen (possible NAPL)	Oil-Coated/Wetted Removed in EECA Support Sampling
EE/CA Borings (Completed in 2017)			
CG-SB61	12-13	Sheen (5-25%) from 12-13 ft	Sheen
CG-SB62	5-8	Sheen (5-15%) from 5-8 ft, odor 5-8 ft	Sheen
	9.5-10.5	Sheen 9.5 to 10.5 ft, odor	Sheen
CG-SB65	9.5-9.6	Sheen at 9.5 to 9.6 ft and 10 to 12 ft	Sheen
	10-12	Sheen at 9.5 to 9.6 ft and 10 to 12 ft	Sheen
CG-SB66	10-15	Sheen (5-25%) from 10 to 15 ft	Sheen
CG-SB76	6.5-7	Odor, sheen (10-50%)	Sheen
CG-SB77	8-10	Sheen (75-100%) from 8 to 9.5 ft, odor from 8 to 10 ft	Sheen
CG-SB80	7.5-8	Sheen (25-50%) at 7.5 to 8.0 ft, odor	Sheen
	16-17	Oil staining (50-75%) from 16 to 17 ft, free product in pore spaces, odor	Oil-Wetted
CG-SB81	11-12	Sheen (75-100%), oil staining (25-50%) from 11 to 12 ft, free product in pore spaces	Oil-Wetted
	17.5-18	Sheen (75-100%) from 17.5 to 18 ft	Sheen

Table 1 - NAPL Observations

Boring ID	Depth Interval feet bgs	Description of NAPL Indicator	Category of Indicator
CG-SB82	16-17	Oil coating (50-80%), emulsified (2-25%) 1-2cm	Oil-Coated
	17-17.5	NAPL impacted 17 - 17.5 ft	Oil-Coated
CG-SB86	11-12	Sheen (10-30%) at 11 to 12 ft, odor 11 to 12 ft, moist	Sheen
CG-SB88	13.5-14	Sheen (10-30%) from 13.5 to 14.0 ft, odor	Sheen
CG-SB89	15-17.5	Sheen (50-75%) and oil coating (10-25%) from 15 to 17.5 ft, trace free product	Oil-Coated
CG-SB90	16.7-17	Sheen (10-25%) at 16.7 to 17.0 ft, odor	Sheen
CG-SB91	12.5-13.5	Sheen (50-75%) from 12.5 to 13.5 ft, odor	Sheen
CG-SB94	16-18.5	Sheen (10-50%) from 16 to 18.5 ft, odor	Sheen
CG-SB95	7-11	Sheen (10-50%) from 7 to 11 ft, oil staining (50-75%) from 11 to 12 ft, odor	Sheen
	11-12	Sheen (10-50%) from 7 to 11 ft, oil staining (50-75%) from 11 to 12 ft, odor	Staining
CG-SB96	8.5-14	Sheen throughout, odor, oil staining	Staining
CG-SB97	9-9.5	Emulsified product (5-15%, 1-3 mm) from 9 to 9.5 ft	NAPL Blebs
	9.5-13.8	Sheen (10-50%) from 9.5 to 13.8 ft	Sheen
CG-SB98	7.5-10	Strong odor and sheen (40-80%) from 7.5 to 10 ft	Sheen
CG-SB99	5.4-6	Sheen at 5.4 to 6.0 ft, odor	Sheen
CG-SB100	9-13	Sheen(20-40%) from 9 to 12 ft, oil staining (50-75%) from 12 to 13 ft, odor	Staining
	13-13.3	Oil staining from 13 to 13.3 ft, odor	Staining
CG-SB101	16-17.5	Sheen (10-25%) from 16 to 17.5 ft	Sheen
CG-SB102	9-13	Sheen (10-25%) with odor at 9 to 13 ft	Sheen
CG-SB103	7.5-14	Sheen (80-100%), strong odor	Sheen
CG-SB104	3.7-3.9	Sheen (75-100%) on wood with odor	Sheen
CG-SB105	9.3-9.6	Sheen at 9.3 to 9.6 ft, odor	Sheen
	12.5-13	Sheen and oil staining at 12.5 to 13 ft	Staining
	13-13.2	Some oil staining 13 to 13.2 ft, odor	Staining
CG-SB106	10-12.5	Odor, sheen (50-75%) and oil staining (50-75%) from 10 to 12.5 ft	Staining
CG-SB106	12.5-14	Odor, oil staining (10-25%) from 12.5 to 14 ft	Staining
CG-SB107	11-12.5	Sheen on wood from 11 to 12.5 ft, oil coating (10-25%) and emulsified (10-25%) from 11 to 12.5 ft	NAPL Blebs
CG-SB108	8.5-12.5	Sheen (80-100%), oil staining, odor	Staining
CG-SB109	11.5-13.8	Odor, sheen (50-75%) and oil coating (10-25%)	Oil-Coated
	13.8-14	Sheen and oil coating from 13.8 to 14 ft	Oil-Coated
CG-SB110	6-6.9	Wood chips from 6.0 to 6.9 ft with sheen (50-100%) and emulsified NAPL (5-15%) fluid	NAPL Blebs
CG-SB111	11.1-17.5	Oil coated (15-30%) from 11.1 to 11.8 ft and 11-17.5 ft strong odor	Oil-Coated

Table 1 - NAPL Observations

Boring ID	Depth Interval feet bgs	Description of NAPL Indicator	Category of Indicator
CG-SB113	6.2-6.5	Sheen with strong odor at 6.2 to 6.5 ft	Sheen
	9-10	Strong odor, sheen	Sheen
CG-SB115	5-10	Sheen on outside of core	Sheen
CG-SB121	7.5-13	Oil wetted with strong odor from 7.5 to 13 ft	Wetted
CG-SB123	9.8-10	Gravel from 9.8 to 10 ft with sheen and odor	Sheen
	10-17.5	Sheen (50-75%), oil staining (0-20%), odor	Staining
CG-SB124	5-9	Slight sheen and odor from 5 to 9 ft, wet	Sheen
CG-SB126	8.5-13.6	Sheen (25-50%) with odor	Sheen
CG-SB127	9.5-13.7	Sheen (25-50%) and odor at 9.5 ft	Sheen
CG-SB128	6.5-8.7	Slight sheen (5-10%), wet	Sheen
CG-SB129	7-8.7	Sheen at 7 ft, slight odor from 5 to 10 ft	Sheen
	8.7-8.9	Sheen (5-10%)	Sheen
	8.9-14.5	Sheen (20-30%), slight odor	Sheen
CG-SB131	12-14.2	Sheen (10-20%) and odor at 12 ft	Sheen
	14.2-14.5	Woodchips, sheen (5-10%), odor	Sheen
	14.5-17	Sheen (20-35%), odor	Sheen
	17-17.8	Sheen (5-10%), odor	Sheen
CG-TT28	3-6	Oil Coated, strong odor, sheen on water @6 ft	Staining
CS-SB35	13-14	Emulsified (10-25% 1-3 cm), oil coated (10-50%), odor	NAPL Blebs
CS-SB49	12.8-14.1	Some sheen (25-50%) from 12.8 to 14.1	Sheen
FT-TT08 ²	0-4	Surficial NAPL and oil staining, odor	NAPL Blebs
FT-TT09 ²	0-2	Surficial NAPL, slight odor	NAPL Blebs
FT-TT10 ²	0-2	Surficial NAPL, slight odor	NAPL Blebs

NOTES:

1. Observations for borings installed prior to 2017 taken from RI/FS Group RI Report (Arcadis 2016).
2. NAPL observation removed as investigative derived waste as part of Site investigation activities.
3. Refer to Figures 4A and 4B in the EECA.

Attachment 8

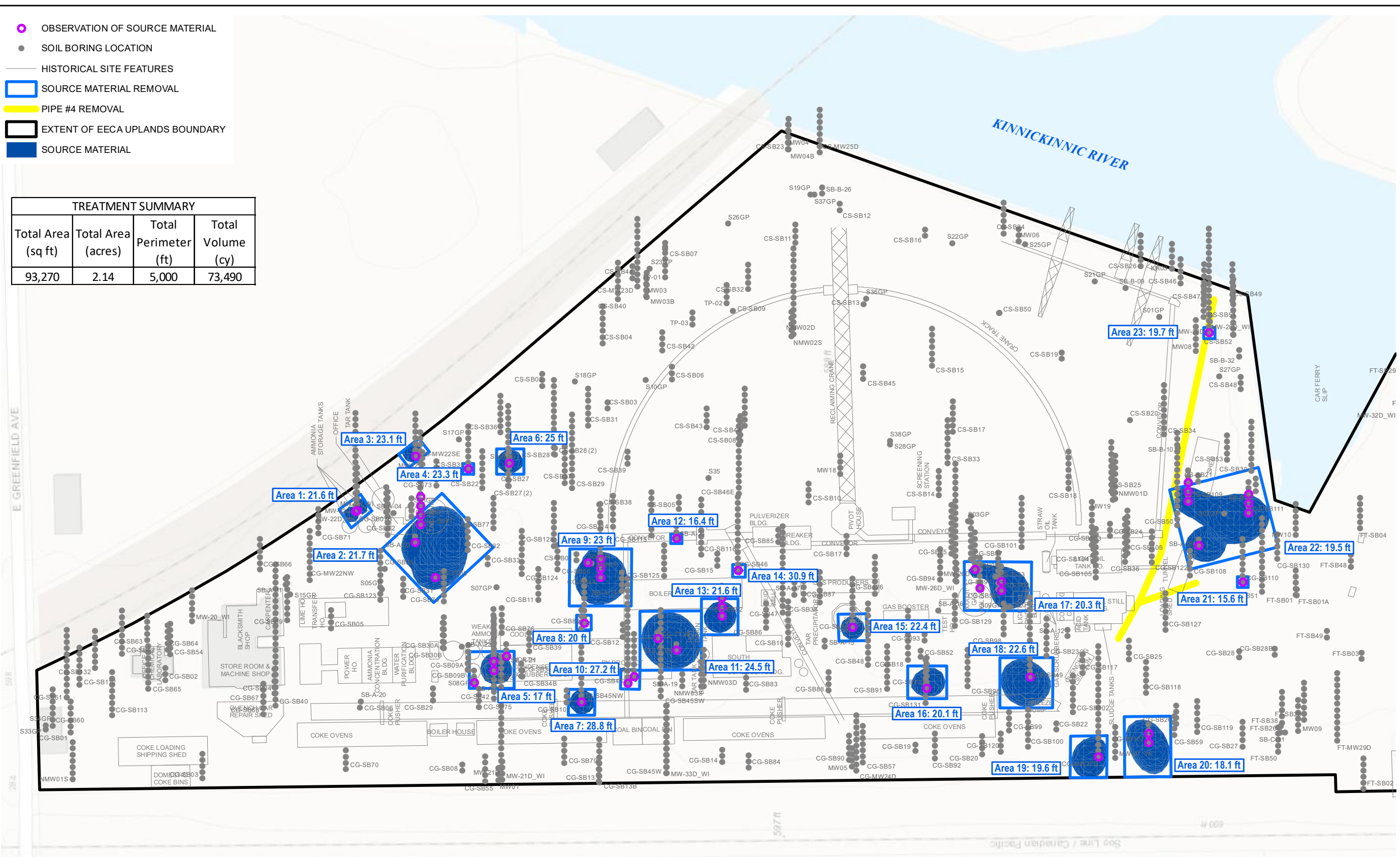
Extent of Source Material

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

Y:\Mapping\Projects\2112133\MXD\EECA Report\Figure 11_Removal Action Alternative 04.mxd Author: GalarmMC, Date/Time: 11/12/2018, 11:52:22 AM

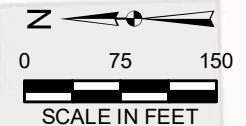
- OBSERVATION OF SOURCE MATERIAL
- SOIL BORING LOCATION
- HISTORICAL SITE FEATURES
- SOURCE MATERIAL REMOVAL
- PIPE #4 REMOVAL
- EXTENT OF EECA UPLANDS BOUNDARY
- SOURCE MATERIAL

TREATMENT SUMMARY			
Total Area (sq ft)	Total Area (acres)	Total Perimeter (ft)	Total Volume (cy)
93,270	2.14	5,000	73,490



NOTES:

- Engineered surface barrier to address direct contact will extend to site boundary.
- Refer to the Milwaukee Solvay Coke and Gas Site Remedial Investigation / Feasibility Study Group, RI Report (Arcadis 2016) and the 2017 EE/CA Support Sampling Data Summary (NRT 2017) for additional discussion on boring locations and visual observations of NAPL.
- Refer to Section 2.5 of the EE/CA for details on areas and volumes and Section 3 for discussion of removal action alternatives.
- Source materials include saturated, partially saturated, oil-wetted, or oil-coated materials, NAPL blebs, and hard tar.
- Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community



DRAWN BY/DATE:
TDC 9/20/18
REVIEWED BY/DATE:
JMH 9/20/18
APPROVED BY/DATE:
JMH 11/12/18

REMOVAL ACTION ALTERNATIVE - 04
ENGINEERING EVALUATION AND COST ANALYSIS REPORT
FORMER MILWAUKEE SOLVAY COKE AND GAS SITE
311 EAST GREENFIELD AVENUE
MILWAUKEE, WISCONSIN

FIGURE NO: 11



Attachment 9

Preliminary List of ARARs, TBCs

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

**Table 2 - Preliminary List of Applicable or Relevant and Appropriate Requirements (ARARs)
and To Be Considered (TBC) Guidance/Criteria**

Chemical-Specific ARARs/TBC					
MEDIA	REQUIREMENT, CRITERIA, STANDARD, LIMIT	RELEVANT ALTERNATIVES	CITATION	TYPE OF ARAR	RELATIONSHIP BETWEEN REQUIREMENT, CRITERIA, STANDARD AND/OR LIMIT AND ALTERNATIVE COMPONENT AND OTHER COMMENTS
FEDERAL					
Soil	Soil Cleanup Standards	Alternatives 1-5	Risk Assessment Guidance for Superfund (RAGS) – Parts A, B, D, and E (USEPA 1989, 1991a, b, 2001, 2004)	To be Considered	RAGS provides a basis for identifying levels of contaminant concentrations that can remain on-site and be protective of public health, considering Site conditions and land use Wisconsin risk-based standards are based on RAGS methodology
WISCONSIN					
Soil	Soil Cleanup Standards	Alternatives 1-5	Wis. Admin. § NR 720: Soil Cleanup Standards	Applicable	Soil Cleanup Standards are legally applicable to soil, preferred method for determining RCLs outlined based on EPA soil screening values and 10-6 for individual compounds and 10-5 for cumulative risk, alternate RCLs can be developed with input from WDNR.
			Wis. Admin. § NR 726: Case Closure	Potentially Applicable	NR 726 Case Closure Cleanup requirements are relevant and appropriate, if WDNR case closure is pursued.
Soil	Hazardous Waste Management	Alternatives 1-5	Wis. Admin. § NR 600: Hazardous Waste Management	Potentially Applicable	If hazardous wastes are identified, treated stored, and disposed, NR 600 may apply.

**Table 2 - Preliminary List of Applicable or Relevant and Appropriate Requirements (ARARs)
and To Be Considered (TBC) Guidance/Criteria**

Chemical-Specific ARARs (Continued)					
MEDIA	REQUIREMENT, CRITERIA, STANDARD, LIMIT	RELEVANT ALTERNATIVES	CITATION	TYPE OF ARAR	RELATIONSHIP BETWEEN REQUIREMENT, CRITERIA, STANDARD AND/OR LIMIT AND ALTERNATIVE COMPONENT AND OTHER COMMENTS
Sediment	Surface Water Quality Standards	Alternatives 1-5	Wis. Admin. § NR 105: Surface Water Quality Criteria and Secondary Values for Toxic Substances	To Be Considered	Surface Water Quality Standards. Refer to WDNR Publication PUBL-RR-606 (see TBC, page 4). Consideration based on potential for surface soil to impact sediment
Surface Water	Surface Water Quality Standards	Alternatives 1-5	Wis. Admin. § NR 105: Surface Water Quality Criteria and Secondary Values for Toxic Substances	Applicable	Surface Water Quality Standards for the MGP-related COCs at the site are applicable to monitoring of surface water as part of evaluation of a cap.

**Table 2 - Preliminary List of Applicable or Relevant and Appropriate Requirements (ARARs)
and To Be Considered (TBC) Guidance/Criteria**

Location-Specific ARARs					
MEDIA	REQUIREMENT, CRITERIA, STANDARD, LIMIT	RELEVANT ALTERNATIVES	CITATION	TYPE OF ARAR	RELATIONSHIP BETWEEN REQUIREMENT, CRITERIA, STANDARD AND/OR LIMIT AND ALTERNATIVE COMPONENT AND OTHER COMMENTS
FEDERAL					
NONE IDENTIFIED					
WISCONSIN					
Kinnickinnic River and associated frontage	Navigable Water Ways Requirements	Alternatives 2 - 5	Wis. Stat. § 30: Navigable Waters, Harbors and Navigation	Potentially Applicable	Should soil excavation or other removal activities impact the bank of the Kinnickinnic River, Navigable Water Ways Requirements will apply.
		Alternatives 2 - 5	Wis. Stat. § 281: Water and Sewage	Potentially Applicable	
		Alternatives 2 - 5	Wis. Admin. § NR 328: Shore Erosion Control Structures in Navigable Waterways	Potentially Applicable	
		Alternatives 2 - 5	Wis. Admin. § NR 341: Grading on the Bank of Navigable Waterway	Potentially Applicable	

**Table 2 - Preliminary List of Applicable or Relevant and Appropriate Requirements (ARARs)
and To Be Considered (TBC) Guidance/Criteria**

Soil Action-Specific ARARs					
MEDIA	REQUIREMENT, CRITERIA, STANDARD, LIMIT	RELEVANT ALTERNATIVES	CITATION	TYPE OF ARAR	RELATIONSHIP BETWEEN REQUIREMENT, CRITERIA, STANDARD AND/OR LIMIT AND ALTERNATIVE COMPONENT AND OTHER COMMENTS
FEDERAL					
Soil Disturbance	Air Emission Requirements, Criteria and Limitations	Alternatives 2-5	40 CFR Part 50.1 - 50.12 - National Ambient Air Quality Standards	Applicable	Air emission requirements will be applicable during soil excavation activities that generate fugitive dust and/or vapors
Soil	Transportation/ Disposal of soil	Alternatives 2-5	RCRA - Standards for Hazardous Waste Generators or Hazardous Waste Transporters (40 CFR 262 and 263)	To be Considered	Potentially applicable for off-site transport of hazardous waste to off-site treatment/disposal facilities.
WISCONSIN					
Wastewater Discharges	Surface Water Effluent Standards, Criteria, and Limitations	Alternatives 2-5	Wis. Stat. § 281: Water and Sewage	Applicable	Surface water quality effluent standards, criteria and limitations are applicable where dewatering during removal activities may necessitate discharge to the Kinnickinnic River. Discharge to POTW is an offsite action, and any pretreatment requirements would need to be met.
		Alternatives 2-5	Wis. Stat. § 283: Pollution Discharge Elimination	Applicable	
		Alternatives 2-5	Wis. Admin. § NR 106: Procedures for Calculating Water Quality Based Effluent Limitations for Point Source Discharges to	Applicable	
		Alternatives 2-5	Wis. Admin. § NR 200 - Application for Discharge Permits and Water Quality Standards Variances	Applicable	
		Alternatives 2-5	Wis. Admin. § NR 207: Water Quality Antidegradation	Applicable	
		Alternatives 2-5	Wis. Admin. § NR 218: Method and Manner for Sampling	Applicable	

**Table 2 - Preliminary List of Applicable or Relevant and Appropriate Requirements (ARARs)
and To Be Considered (TBC) Guidance/Criteria**

Soil Action-Specific ARARs (Continued)					
MEDIA	REQUIREMENT, CRITERIA, STANDARD, LIMIT	RELEVANT ALTERNATIVES	CITATION	TYPE OF ARAR	RELATIONSHIP BETWEEN REQUIREMENT, CRITERIA, STANDARD AND/OR LIMIT AND ALTERNATIVE COMPONENT AND OTHER COMMENTS
Wastewater Discharges	Surface Water Effluent Standards, Criteria, and Limitations	Alternatives 2-5	Wis. Stat. § 281: Water and Sewage	Applicable	Surface water quality effluent standards, criteria and limitations are applicable where dewatering during removal activities may necessitate discharge to the Kinnickinnic River. Discharge to POTW is an offsite action, and any pretreatment requirements would need to be met.
			Wis. Stat. § 283: Pollution Discharge Elimination	Applicable	
			Wis. Admin. § NR 216: Storm water Discharge Permits	Applicable	
			Wis. Admin. § NR 151: Runoff Management	Applicable	
Site Disturbance In-Situ Treatment of Soil that generates vapors	Air Emissions Requirements, Criteria, Limitations	Alternatives 2-5	Wis. Admin. § 415 - Control of Particulate Emissions	Applicable	Air emission requirements will be applicable during soil excavation activities that generate fugitive dust and/or vapors Air emission requirements will be applicable to in-situ treatment alternatives that involve the generation of vapors.
			Wis. Admin. § 419 - Control of Organic Compound Emissions	Applicable	
			Wis. Admin. § 429 - Malodorous Emissions and Open Burning	Applicable	
			Wis. Admin. § 431 - Control of Visible Emissions	Applicable	
			Wis. Admin. § 445 - Control of Hazardous Pollutants	Applicable	

**Table 2 - Preliminary List of Applicable or Relevant and Appropriate Requirements (ARARs)
and To Be Considered (TBC) Guidance/Criteria**

All Media Action-Specific ARARs					
MEDIA	REQUIREMENT, CRITERIA, STANDARD, LIMIT	RELEVANT ALTERNATIVES	CITATION	TYPE OF ARAR	RELATIONSHIP BETWEEN REQUIREMENT, CRITERIA, STANDARD AND/OR LIMIT AND ALTERNATIVE COMPONENT AND OTHER COMMENTS
FEDERAL					
NONE IDENTIFIED					
WISCONSIN					
All Media – Chemical Specific	Laboratory Certification Requirement	Alternatives 2-5	Wis. Admin. § NR 149: Laboratory Certification and Registration Wis. Admin. § NR 299.01(4): Water Quality Certification	Applicable	Applicable. Any sampling during design and implementation must meet these requirements
Remediation Standards, Requirements, and Initiatives	Remedy selection, design, implementation and operation and maintenance requirements	Alternatives 2-5	Wis. Admin. § NR 724: Remedial and Interim Action Design, Implementation, Operation, Maintenance and Monitoring Requirements	Applicable	Applicable. The removal action documents provide standards and requirements for remediation of contamination sites in Wisconsin. NR 722 is very similar to the NCP for remedy evaluation and selection.
Soil	Continuing Obligations	Alternatives 2-5	Wis. Admin § NR 725 Continuing Obligation Requirements	Potentially Applicable	If Wisconsin Continuing Obligations are used to prevent direct contact with contaminated soil within 4 feet of ground surface as an institutional controls, NR 725.05(2)(a) is applicable.
Solid Waste	Management of solid waste	Alternatives 2-5	Wis. Admin § NR 500-590 General Solid Waste Management Requirements	Potentially Applicable	Establishes storage, transportation and disposal requirements for managing solid waste related to solid waste facilities. Complying with NR 718 requirements exempts responsible parties from NR 500 to 538.
Soil	Management of contaminated soil	Alternatives 2-5	Wis. Admin § NR 718.12 and 718.15: Management of Contaminated Soil or Solid Wastes Excavated During Response Actions	Potentially Applicable	Should stockpiled material be reused on site, NR 718.12 and 718.15 will apply.

**Table 2 - Preliminary List of Applicable or Relevant and Appropriate Requirements (ARARs)
and To Be Considered (TBC) Guidance/Criteria**

Other Non-ARAR Requirements (Full Compliance is Required)				
ALTERNATIVE COMPONENT	REQUIREMENT, CRITERIA, STANDARD, LIMIT	RELEVANT ALTERNATIVES	CITATION	RELATIONSHIP BETWEEN REQUIREMENT, CRITERIA, STANDARD AND/OR LIMIT AND ALTERNATIVE COMPONENT AND OTHER COMMENTS
FEDERAL				
NONE IDENTIFIED				
WISCONSIN				
Institutional Controls – any media	Continuing Obligation (CO) Requirements	Alternatives 2-5	Wis. Admin. § NR 725 and 726	Should WI CO responsibilities be used as additional ICs, then the rule requirements are applicable. To be enforceable, WDNR must issue an approval of a remedial (removal) action type plan with enforceable requirements for the continuing obligations. Enforcing COs at properties not controlled by the RP could be an issue.
Site Disturbance	Local authorities may require a building, zoning, etc. permit for any permanent or semi-permanent structure, such as an on-site water treatment system building or a retaining wall.	Alternatives 2-5	Local Permits (building, zoning, other)	Permitting to be considered if structures/retaining walls constructed
Site Disturbance	Required prior to land disturbing activity affecting a surface area of 4,000 square feet or more; excavation, filling, or storage affecting a volume of 100 cubic yards or more; or demolition, razing, or major repair of any building where soil could be exposed to wind or rain.	Alternatives 2-5	Erosion Control - Chapter 290 Milwaukee Code of Ordinances	Permit may be required for excavation activities.
Site Disturbance	Definitions and regulations related to noise control.	Alternatives 2-5	Noise Control - Subchapter 2	Noise control during remediation activities may be required, based on noise levels at property boundary.

**Table 2 - Preliminary List of Applicable or Relevant and Appropriate Requirements (ARARs)
and To Be Considered (TBC) Guidance/Criteria**

To Be Considered Standards, Guidance, and Initiatives			
ALTERNATIVE COMPONENT	REQUIREMENT, CRITERIA, STANDARD, LIMIT	CITATION	RELATIONSHIP BETWEEN TBC AND ALTERNATIVE COMPONENT
FEDERAL			
NONE IDENTIFIED			
WISCONSIN			
Soil Cleanup Standards	Alternatives 2-5	WDNR Guidance Document: "Soil Residual Contaminant Level Determinations Using the U.S. EPA Regional Screening Level Web Calculator" (WDNR PUBL-WR-890, January 23, 2014) WDNR Guidance Document: "RR Program's RCL Spreadsheet Update" (WDNR-RR-052c, December 2015)	These documents provide guidance on applying the U.S. EPA Screening Level Web Calculator to Wisconsin soils to calculate soil cleanup standards.
Air Management Guidelines Community Involvement	Alternatives 2-5	Wisconsin Bureau of Environmental and Occupational Health, Department of Health and Family Services: "Health-based Guidelines for Air Management and Community Involvement During Former Manufactured Gas Plant Clean-ups" (March 23, 2014)	This document provides guidance on developing Air Management Plans to protect human health during remedial (removal) activities at MGP sites in Wisconsin.
Soil Cover Guidance	Alternatives 2-5	WDNR Guidance Document: "Guidance for Cover Systems as Soil Performance Standard Remedies" (WDNR PUBL-RR-709, October 2013)	This document provides guidance on cover systems and soil performance standard remedies.
Remediation Standards, Requirements, and Initiatives	Alternatives 2-5	Wisconsin's Initiative for Sustainable Remediation and Redevelopment in the State of Wisconsin, A Practical Guide to Green and Sustainable Remediation in the State of Wisconsin. (WDNR Pub-RR-911, January 2012)	The Guide to Green and Sustainable Remediation provides guidance on implementing the USEPA's Superfund Green Remediation Strategy (September 2010) at cleanup sites in Wisconsin.
Institutional Controls (Continuing Obligations) Requirements	Alternatives 2-5	WDNR Guidance Document: "Guidance on Case Closure and the Requirements for Managing Continuing Obligations" (WDNR PUBL-RR-606, April 2014); WDNR Guidance Document: "DNR Case Closure Continuing Obligations: Vapor Intrusion" (WDNR PUBL-RR-042, Aug 2015)	These documents provide guidance on which vapor intrusion continuing obligations should be selected when preparing for case closure.

**Table 2 - Preliminary List of Applicable or Relevant and Appropriate Requirements (ARARs)
and To Be Considered (TBC) Guidance/Criteria**

NOTES:

1. Wis. Admin NR700-754 may generally be applicable or relevant and appropriate

ACRONYMS:

ARARs: Applicable or Relevant and Appropriate

CO: Continuing Obligation

COCs: Compounds of Concern

IC: Institutional Control

MGP: Manufactured Gas Plant

RAGS: Risk Assessment Guidance for Superfund

TBC: To Be Considered

USEPA: United States Environmental Protection Agency

WDNR: Wisconsin Department of Natural Resources

Wis. Stat.: Wisconsin Statute

Wis. Admin.: Wisconsin Administrative Code

Attachment 10

Responsiveness Summary

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

Solvay Coke and Gas Company Site

OU 2

Responsiveness Summary

This Responsiveness Summary provides a summary of public comments that the United States Environmental Protection Agency (EPA) received regarding a proposed non-time-critical removal action (NTCRA) at the Uplands Area of the Solvay Coke and Gas Site, and comments on the *Engineering Evaluation/Cost Analysis Report*, dated December 10th, 2018 and published for public comment on December 17th, 2018. The public comment period ended on January 18th, 2019. This Responsiveness Summary also provides EPA's responses to those comments.

1. Outcome of Review of Public Comments and State Consultation

EPA would like to thank all members of the community and local organizations that took the time to provide a response. After reviewing and considering all public comments submitted during the public comment period, EPA signed an Action Memorandum selecting a response action for the Uplands Area of the Solvay Coke and Gas Company Site (the "Site"). The public comments did not result in changes to EPA's comparative evaluation of the options. The selected response action is Removal Action Alternative-04, the action that was identified as EPA's preferred alternative. EPA has negotiated an Administrative Settlement Agreement and Order on Consent with We Energies (WE), requiring WE to implement the selected removal action.

2. Comments and Responses

EPA received written responses during the public comment period from 5 different individuals or organizations, including: members of the local community, Harbor District, Inc., the Milwaukee Metropolitan Sewerage District, and the Redevelopment Authority of the City of Milwaukee. Copies of all the comments received are included in the administrative record for OU 2.

This Responsiveness Summary does not repeat verbatim each individual comment. Rather, the comments are summarized and grouped by category with respect to the type of issue raised. The comments fell within several different categories: Remedy Selection, Site Investigation, Remedy Implementation, Remedy Scope, Future Site Use, Community Involvement, and Miscellaneous. The remainder of this Responsiveness Summary contains a summary of the comments received and EPA's responses to those comments, grouped by category.

Remedy Selection

The Milwaukee Metropolitan Sewerage District and the Redevelopment Authority of the City of Milwaukee expressed a preference for RAA-04.

Thank you for your comments. The selected response action is RAA-04.

One commenter expressed a preference for RAA-03, as it "spends/does more."

Thank you for your comment.

The EE/CA Report evaluated RAA-01 through RAA-05 for cost, effectiveness, and implementability, consistent with EPA's "Guidance on Conducting a Non-Time-Critical Removal Actions Under CERCLA." Consistent with CERCLA and the NCP, EPA seeks to select remedies that are cost-effective. Overall effectiveness is determined by evaluating the long-term effectiveness and permanence; reduction in toxicity, mobility and volume through treatment; and short-term effectiveness for each alternative. Overall effectiveness is then compared to cost to determine whether the remedy is cost-effective. Based upon the evaluation of the removal action alternatives presented in the EE/CA Report, EPA is moving forward with the selection of RAA-04.

RAA-04 provides greater short-term protectiveness and reduction in toxicity, mobility, and volume through treatment than RAA-03 at a lower cost. While RAA-03 and RAA-04 present different potential implementation challenges, the implementation challenges associated with RAA-04 can be effectively mitigated during the design phase.

Site Investigation

One comment noted that the U.S. Geological Survey (USGS) has identified the radioactive elements uranium, thorium, and radon as components of coal and fly ash and proposed that unsafe levels of radioactivity must be identified at the Site for remediation.

According to the USGS, while coal and fly ash naturally contain the radioactive elements uranium, thorium, and their decay products, including radium and radon, these are trace elements of coal and fly ash and should not be sources of alarm. The vast majority of coal and the majority of fly ash are not significantly enriched in radioactive elements, or in associated radioactivity, compared to common soils or rocks.

One commenter noted that former structures may have been exposed to concentrated levels of coal toxics, and requested identification of these materials if the demolition debris are left on-site.

During Non-Time-Critical Removal Action Preparation Activities, demolition debris were analyzed for polyaromatic hydrocarbons (PAHs) and metals. Analytical results are summarized in Table 1 of the EE/CA Data Summary Report. The analytical results indicate that PAHs and metals did not exceed regulatory screening levels set at levels protective of industrial use of the Site.

One comment noted that ground penetrating radar plots have not been provided.

Ground penetrating radar plots may be incorporated as a component of pre-design investigation activities, as necessary to facilitate design and implementation of the removal action.

One comment requested if sampling and analysis of non-affected overburden soil had been conducted at the site.

Section 2.5.3 of the EE/CA Report proposes that in areas where the top of material targeted for treatment via in-situ soil stabilization is several feet below ground surface, excavation or treatment of overburden material may be required to implement a particular technology. Sampling of the overburden material will be conducted as necessary to implement the removal action.

The Harbor District, Inc. expressed concerns regarding the following:

- *The potential for migration of Site contaminants to the surface waters of the adjacent Kinnickinnic River (via overland transport and groundwater discharges to surface water); and*
- *The current level of groundwater characterization at the Site, especially with respect to the number and location of wells on the Site and the representativeness of the results from the current groundwater wells installed on the Site.*

Additionally, the Harbor District, Inc requested clarification regarding future plans for remediation, including:

- *EPA's plans to address all groundwater contamination at the Site, noting that the planned removal action will not address all groundwater contaminants; and*
- *Information about how a naturalized shoreline may be used to adequately protect against migration of contaminants to the Kinnickinnic River should maintenance of a bulkhead not be included as a component of the selected removal action.*

Another commenter expressed support of these measures.

It should be noted that the scope of the proposed removal action is limited to site soils in the Uplands Area. It should also be noted that the removal action is an interim action, and is not a final remedy for the Site. EPA anticipates that the Site will be transferred to the State of Wisconsin for remaining response actions following completion of the removal action.

Nonetheless, RAA-04 includes measures that will prevent some migration of Site contaminants to the Kinnickinnic River. RAA-04 proposes the removal of Pipe 4 and ancillary outfall pipes identified along the Kinnickinnic River, which are a potential preferential pathway for contaminant migration. RAA-04 also proposes installation and vegetation of a direct contact surface barrier, which will minimize release of soil to the river via erosion.

It is not the intention of the removal action to restore groundwater to beneficial use, although groundwater conditions at the Uplands Area are expected to improve following implementation of the in-situ soil stabilization/solidification (ISS) component of the removal action. Following completion of the ISS component of the remedy, the existing groundwater monitoring network will be re-evaluated, and additional groundwater monitoring wells may be installed. Post-removal site control measures will include additional groundwater monitoring. These data will provide additional clarity on groundwater conditions at the Site following completion of the

removal action. Shoreline stability will be further assessed during the design phase of the removal, as necessary to implement the removal action.

Removal Action Implementation

One comment noted that off-gassing flow projections on neighborhoods is not included in the EE/CA Report.

Fugitive emissions control plans for ensuring the protection of on-site workers and members of the surrounding community will be in effect during removal action implementation.

One comment requested clarification on how a potential redeveloper will participate in the implementation of the removal action.

EPA will oversee We Energies, the potentially responsible party, in its performance of the removal action.

One comment referenced the EE/CA Report which states that low permeability silts and clays, at depths averaging 20 to 25 feet bgs act as a physical barrier to the vertical migration of contaminants and recommended an analysis of removal beyond 20 to 25 feet bgs and replacement with clean fill topped with compost.

Low permeability silts and clays act as a confining layer, or physical barrier to the vertical migration of contaminants. Principal threat wastes have not been observed in soil borings at depths below the confining layer. EPA does not expect removal beyond the confining layer.

Removal Action Scope

One comment requested clarification on the location of the "River Portion of the Site", and how EPA intends to address the River Portion of the Site.

The "River Portion of the Site" refers to impacted media in the Kinnickinnic River adjacent to the Site. The Kinnickinnic River is not within the scope of the proposed removal action and may be addressed through future response actions. As discussed in previous comments, EPA anticipates transferring the Site to the State of Wisconsin for additional response actions following completion of the removal action.

One comment noted that the U.S. Army Corps of Engineers (USACE) is not mentioned in the EE/CA Report, and further noted that the USACE conducts dredging operations in the nearby Kinnickinnic River.

USACE conducts dredging operations in the nearby Kinnickinnic River. However, as the Kinnickinnic River is not within the scope of the proposed removal action, the USACE's involvement through dredging operations have not been included in the EE/CA Report.

One comment asked if there is an analysis of "current effects of site leaks detectable at water intakes and in neighborhood fishable and swimmable waters".

Appendix D of the EE/CA Report includes Table 1 which presents groundwater analytical results compared to surface water ecological criteria. One groundwater sample contained benzo(a)pyrene at a concentration exceeding the surface water ecological screening criteria. Metals were detected in other samples at concentrations exceeding the surface water ecological screening criteria.

Future Site Use

The Harbor District, Inc requested that EPA ensure consistency between the Site remediation and the Harbor District, Inc. Water and Land Use Control Plan (WaLUP).

EPA cannot ensure future consistency between Site remediation and the Harbor District, Inc.'s WaLUP. For the purposes of this removal action, EPA has assumed a reasonably anticipated future land use consistent with the City of Milwaukee's zoning of the property as "IO2". Accordingly, EPA has selected clean-up standards protective of the expected future industrial use of the Uplands Area.

The Harbor District, Inc. requested that EPA ensure that future risks to the community and ecological protections are addressed. The comment requested that EPA explain how the removal action will not preclude a final remedy that addresses and is protective of ecological risks, and whether the baseline ecological risk assessment will be reconsidered in response to current conditions and existing plans.

The baseline ecological risk assessment will not be reconsidered for this removal action. As already noted, EPA has assumed a reasonably anticipated future land use consistent with the City of Milwaukee's zoning of the property as "IO2". Accordingly, EPA has selected clean-up standards protective of industrial use of the Uplands Area.

The selected remedy does not preclude additional cleanup to more protective levels should reasonably anticipated land use change. In that event, it may be necessary to reconsider the baseline ecological risk assessment.

Community Involvement

The Harbor District, Inc. expressed that they and their partners are interested in continued involvement and partnership to ensure the cleanup achieves its intended results. Specifically, they requested EPA's plans to share results of the future monitoring at this Site, so that all stakeholders may be confident that sources have been effectively remedied and groundwater at the Site is showing improvement, and that community members and property owners are adequately protected.

EPA plans to share information via the site's web page at www.epa.gov/superfund/solvay-coke, which will be updated as needed. Stakeholders may also receive notifications via the site's email group which is maintained by Community Involvement Coordinator Susan Pastor. Stakeholders may contact her at 312-353-1325, 800-621-8431, Ext. 31325, or pastor.susan@epa.gov to be added to the mailing list. Site-related documents are also available at the site's local information

repository at the Bay View Library, 2566 S. Kinnickinnic Ave., Milwaukee. The administrative record, which contains the documents that lead to EPA's final cleanup decision, is available at the Milwaukee Public Library, 814 W. Wisconsin Ave.

Miscellaneous Comments

One commenter noted that We Energies has requested expansion of a confined disposal facility, as reported by the Port of Milwaukee Director.

This comment is not relevant to this cleanup.

One commenter requested that "pipe type and condition/leakage/exfiltration soils effected and volume of special handling of soils, removal and replacement, with shoreline CDF expansion, or regional toxic waste facility " be corrected before proceeding.

This comment is not relevant to this cleanup.

Attachment 11

Administrative Record Index

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION**

**ADMINISTRATIVE RECORD
FOR THE
SOLVAY COKE AND GAS COMPANY SITE
MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN**

**ORIGINAL
DECEMBER, 2018
SEMS ID: 945178**

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	533478	5/1/02	Tetra Tech, Inc.	File	Site Assessment Report, Volume 1 & 2 (Reference No. 3)	6
2	172775	2/14/03	Karl, R., U.S. EPA	Cliffs Mining Co. & Wrecking	Administrative Order By Consent (AOC) (Signed) - V-W-03-C-733 - Solvay Coke & Gas Site	24
3	945230	4/23/2003	Woods Hole Group Environmental Laboratories	File	Appendix A2 - Revision 2.2	423
4	945229	8/20/2004	Pace Analytical Services	File	Appendix A1	431
5	945233	12/15/2004	Test America	File	Appendix A5	264
6	504353	1/5/05	U.S. EPA	File	Health Consultation	9
7	239270	2/1/05	Earth Tech, Inc.	Water Street Holdings LLC	(Final) Summary of Removal Actions (Photo Documentation) - Vol 3	82
8	239268	3/1/05	Earth Tech, Inc.	Water Street Holdings LLC	(Final) Summary of Removal Actions (Report, Tables, Appendices A Thru E) - Vol 1	377
9	239269	3/1/05	Earth Tech, Inc.	Water Street Holdings LLC	(Final) Summary of Removal Actions (Appendices F Thru I) - Vol 2	522
10	533487	3/1/05	Earth Tech, Inc.	File	Summary of Removal Actions, Volume 1 & 2 (Reference No. 12)	1

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11	533512	7/10/06	WI Dept. of Natural Resources	File	Expanded Site Inspection (Reference No. 37)	62
12	945236	3/1/2006	Aquatec Biological Sciences	File	Appendix A8 - Revision 9	92
13	945232	4/1/2006	New Age/Landmark	File	Appendix A4	125
14	945237	4/28/2006	Microbac Laboratories	File	Appendix A9	134
15	945234	5/19/2006	Gestra Engineering	File	Appendix A6	59
16	945235	6/13/2006	Miller Engineers Scientists	File	Appendix A7	5
17	945240	6/14/2006	Makuehl Co.	File	Appendix B1	64
18	269627	1/26/07	Karl, R., U.S. EPA	Baker, R., American Natural Resources Co and Byrne, D., Cliffs Mining Co.	Administrative Settlement Agreement & Order on Consent for RI/FS (Signed) - V-W-07-C-861	84
19	945239	3/1/2007	Trimatix Laboratories	File	Appendix A11	319
20	945238	3/16/2007	Stat Analysis Corporation	File	Appendix A10	100
21	945242	8/2/2007	Integrays Business Support	File	Appendix D - Consultant Standard Operating Procedures	318
22	945243	8/17/2007	Integrays Business Support	File	Integrays - Figure	2
23	945241	9/2/2007	Integrays Business Support	File	Integrays - Appendix C - Record List	40
24	923661	11/2/07	Natural Resource Technology	American Natural Resources	Asbestos Survey	126
25	921023	4/29/08	Thiboldeaux, R., WI Dept. of Health Services	Boone, D., U.S. EPA	Letter Re: Health Concerns Related to Asbestos in Stockpiled Demolition Debris from Former Solvay Coke Facility	6
26	945231	1/10/2010	Columbia Analytical	File	Appendix A3 - Revision 15	491

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27	939652	12/21/15	Kratzmeyer, J., Arcadis Geraghty & Miller Inc.	Thompson, O., U.S. EPA	Letter Re: Ri/Fs Administrative Settlement Agreement & Order (V W 07 C 861) Remedial Investigation Report & Risk Assessments (Enclosure Missing)	6
28	929359	8/1/16	Arcadis	File	Remedial Investigation Report - Volume I & II (Zip File)	1
29	943273	1/6/17	File	File	Comments - Alternatives Screening Technical Memorandum	29
30	936166	8/31/17	Guerriero, M., U.S. EPA	Ramme, B., WI Gas LLC	Administrative Settlement Agreement And Order on Consent for Site Fencing/Security, Engineering Evaluation/Cost Analysis and Non-Time Critical Removal Action at the Uplands (Signed) - V-W-17-C-010	43
31	936165	9/15/17	Patel, V., U.S. EPA	Guerriero, M., U.S. EPA	Memo Re: Engineering Evaluation/Cost Analysis Approval Memorandum for a Proposed Non-Time-Critical Removal Action at the Solvay Coke & Gas Company Site, Milwaukee, Wisconsin	3
32	939707	9/22/17	NRT	File	Engineering Evaluation/Cost Analysis Support Sampling Plan	1084
33	945181	10/9/17	NRT	File	Addendum to USEPA-Approved Multi-Site Quality Assurance Project Plan (QAPP)	407
34	945182	10/18/17	Patel, V., U.S. EPA	Paulson, R., WE Energies	Letter Re: EPA Approval of Quality Assurance Project Plan Addendum, Appendix A to the EE/CA Support Sampling Plan	2
35	945183	10/24/17	Patel, V., U.S. EPA	Paulson, R., WE Energies	Letter Re: EPA Approval of Engineering Evaluation/Cost Analysis Support Plan, Dated October 24, 2017	1
36	945180	12/21/17	Hagen, J., NRT	Paulson, R., WE Energies	Data Report - Engineering Evaluation and Cost Analysis (EE/CA) Sampling Support Milwaukee Solvay Coke and Gas Site - Attached with Cover Letter	540

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
37	945179	12/14/18	Patel, V., U.S. EPA	Paulson, R., WE Energies	Letter Re: EPA Approval of "Engineering Evaluation/Cost Analysis Report" and "Engineering Evaluation/Cost Analysis Data Summary Report"	1
38	944738	12/10/18	Paulson, R., WE Energies	Patel, V., U.S. EPA	Engineering Evaluation/Cost Analysis (EE/CA) - Revision 4 (Uplands Portion)	284
39	944543	12/18/18	Foss, D., WDNR	Short, T., U.S. EPA	Concurrence of Finalizing the Engineering Evaluation and Cost Analysis (EE/CA) Report	1
40	944542	12/28/18	Patel, V., U.S. EPA	Solvay Coke and Gas Company Site	Preferred Alternative for the Non-Time-Critical Removal Action at the Upland Area of the Solvay Coke and Gas Company Site	5
41	945228	Undated	Integrays Business Support	U.S. EPA	Integrays Business Support - Appendix A - Laboratory Quality Assurance Manuals And Standard Operating Procedures	2

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION**

**ADMINISTRATIVE RECORD
FOR THE
SOLVAY COKE AND GAS COMPANY SITE
MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN**

**UPDATE #2
DATE APRIL 24, 2019
SEMS ID: 947033**

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	947032	1/14/19	Misky, D., Milwaukee, City of	Pastor, S., U.S. EPA	Redevelopment Authority of the City of Milwaukee (RACM) Letter re: Former Milwaukee Solvay Coke & Gas Site Engineering Evaluation/Cost Analysis Comments	2
2	947031	1/17/19	Shafer, K., Milwaukee Metropolitan Sewerage District	Pastor, S., U.S. EPA	Milwaukee Metropolitan Sewerage District Letter re: Former Milwaukee Solvay Coke & Gas Site Engineering Evaluation/Cost Analysis Comments	1
3	947030	1/18/19	Fowler, L. Harbor District Inc	Patel, V., U.S. EPA	Harbor District Milwaukee Letter re: Draft Engineering Evaluation & Cost analysis for WE Energies "Solvay Coke & Gas" EPA Docket No. V-W-17-C-010	4
4	947028	Undated	Walker's Square Neighborhood Association	File	Public Comments: Walker's Square Neighborhood Association	1
5	947029	Undated	Public	File	Public Comments	2

Attachment 12

Enforcement Confidential Addendum

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

SOLVAY COKE AND GAS COMPANY SITE

Enforcement Confidential Addendum to the Action Memorandum

An enforcement addendum was not prepared since the PRP agreed to implement the removal action selected by EPA in the August 2017 AOC.

Attachment 13

2002 Action Memorandum

Solvay Coke and Gas Company Site Operable Unit 2
Milwaukee County, Milwaukee, Wisconsin

SDMS US EPA Region V

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

178021

0000002

REPLY TO THE ATTENTION OF

MEMORANDUM

SEP 17 2002

SE-5J

DATE:

SUBJECT: **ENFORCEMENT ACTION MEMORANDUM** - Determination of Threat to Public Health and the Environment at the Solvay Coke & Gas Site, Milwaukee, Milwaukee County, Wisconsin
(Site ID #B52E)

FROM: Brad Benning, On-Scene Coordinator
Emergency Response Section II

TO: William E. Muno, Director
Superfund Division

THRU: Richard Karl, Chief
Emergency Response Branch

I. PURPOSE

The purpose of this memorandum is to document an imminent and substantial threat to public health, welfare, and the environment posed by the presence of uncontrolled hazardous substances located at the Solvay Coke & Gas facility in Milwaukee, Milwaukee County, Wisconsin (the Site). The hazardous substances consist of coal tar residue in tanks, soils, and sediments and asbestos identified on interior and exterior structures.

The Potentially Responsible Parties (PRPs) propose response actions to mitigate threats to public health, welfare, and the environment posed by the presence of these hazardous substances at the Site. Proposed removal actions include, but are not limited to, the removal and appropriate disposal of all asbestos containing material (ACM), all coal tar residue in above ground storage tanks (AST), removal of hazardous substances from an open waste pit and the contaminated soils around the open waste pit to industrial levels, and the complete demolition and removal of site structures. The presence of hazardous substances located on the surface of the Site, the potential for migration off-site, and the Site's proximity to residential and commercial areas require that this removal be classified as a time-critical.

The Site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

The CERCLIS ID number for the Site is WIN000508215

Site Description

1. Removal site evaluation

For the purposes of the Site assessment, the Site was divided into four areas of interest (AOI) that are described in detail in the integrated field sampling plan (FSP) (Tetra Tech 2001b). The AOIs were identified during a site reconnaissance conducted on October 25, 2001 (see Section 3.1) and were delineated based on historical uses of the Site property. The AOIs include: (1) the former coke and gas production area (Area A in Figure 3); (2) the former coal storage yard (Area B in Figure 3); (3) the southern tip of the site property, which housed two furnace companies (Thomas Furnace Company and Milwaukee Blast Furnace Co.) and two leather tanning companies (Suhm Leather Co. and Fred Rueping Leather Co.) (Area C in Figure 3); and (4) the Kinnickinnic River and riverbank bordering the Site (Area D in Figure 3).

On October 25, 2001, representatives of U.S. EPA, the Wisconsin Department of Natural Resources (WDNR), the Cliffs Mining Company, Wisconsin Wrecking Company, the City of Milwaukee, and START met at the Site to perform a site reconnaissance. After an introductory meeting conducted by U.S. EPA representatives, the parties involved drove along the eastern perimeter of the Site. The parties observed the areas where the former leather tanning, steel furnace, and coke and gas manufacturing activities took place. All observations were made without entering the Site buildings.

After the Site reconnaissance, START developed a Site assessment plan (Tetra Tech 2001a) by reviewing and compiling available Site information, and an integrated FSP (Tetra Tech 2001b), and a Site safety plan for field sampling activities. All these documents were approved by U.S. EPA and were reviewed by representatives of WDNR and the City of Milwaukee before field activities were initiated.

From December 10-19, 2001, a multimedia sampling event was conducted at the Site to screen for possible contamination and identify potential human health and environmental threats in each AOI. Before initiation of field activities, each individual working at the Site was required to read the Site safety plan and to sign in at the Site in accordance with pre-established protocols. Field activities included: (1) exploratory pit investigations and sampling, (2) electrical transformer sampling, (3) river sediment sampling, (4) an inventory and sampling of existing ASTs, (5) inspection of the interiors of former coke and gas manufacturing buildings, (6) preliminary screening of suspected asbestos-containing material (ACM), (7) a preliminary inventory of suspected ACM, and (8) a GPS survey of sampling locations and ASTs. A timeline of the major field activities is provided in Table 1, and each of the activities is discussed below.

SITE ASSESSMENT FIELD ACTIVITIES

Date	Activity
10 Dec 01	Mobilized personnel and equipment to site; set up sample management station
11 Dec 01	Began excavation and sampling of exploratory pits; conducted reconnaissance of Kinnickinnic River; began sediment sampling
12 Dec 01	Continued excavation and sampling of exploratory pits; completed sediment sampling; began logging sediment core stratigraphy and processing sediment samples; demobilized sediment sampling subcontractor, sampling crew, and equipment
13 Dec 01	Completed excavation and sampling of exploratory pits; continued logging sediment core stratigraphy and processing sediment samples; began logging ASTs; demobilized excavation subcontractor
14 Dec 01	Demobilized heavy equipment; finished logging sediment core stratigraphy and processing sediment samples; continued logging ASTs; performed sampling for PCB analysis; conducted GPS survey of sampling points; demobilized personnel
17 Dec 01	Remobilized personnel; began AST characterization and sampling
18 Dec 01	Continued AST characterization and sampling; conducted building interior inspections; performed sampling for PCB analysis
19 Dec 01	Performed preliminary screening of suspected ACM; conducted GPS survey of ASTs

Notes:

ACM = Asbestos-containing material
 AST = Aboveground storage tank
 GPS = Global positioning system
 PCB = Polychlorinated biphenyl

**SUMMARY OF RESULTS FOR ANALYTES THAT
EXCEEDED SCREENING LEVELS IN AREA A**

Parameter	Concentration or Range of Concentrations	Screening Level Exceeded ^a
Soil Inorganics		
Arsenic	3.6 to 22.5 mg/kg	Residential PRG (0.39 mg/kg) Industrial PRG (2.7 mg/kg)
Chromium	3.4 to 80.2 mg/kg	Residential PRG (30 mg/kg) Industrial PRG (64 mg/kg)
Copper	27.0J to 18,000J mg/kg	Residential PRG (2,900 mg/kg)
Cyanide	1.2J to 24.4J mg/kg	Residential PRG (11 mg/kg)
Iron	7,730 to 126,000 mg/kg	Residential PRG (2,300 mg/kg) Industrial PRG (100,000 mg/kg)
Lead	26.0 to 2,750 mg/kg	Residential PRG (400 mg/kg) Industrial PRG (750 mg/kg)
Soil Volatile Organic Compounds		
Benzene	5J to 16,000J µg/kg	Residential PRG (650 µg/kg) Industrial PRG (1,500 µg/kg)
Soil Semivolatile Organic Compounds		
Benzo(a)anthracene	750 to 640,000J µg/kg	Residential PRG (620 µg/kg) Industrial PRG (2,900 µg/kg) Residential ERG (88,000 µg/kg)
Benzo(a)pyrene	650 to 470,000J µg/kg	Residential PRG (62 µg/kg) Industrial PRG (290 µg/kg) Residential ERG (8,800 µg/kg) Industrial ERG (78,000 µg/kg)
Benzo(b)fluoranthene	820J to 330,000J µg/kg	Residential PRG (620 µg/kg) Industrial PRG (2,900 µg/kg) Residential ERG (88,000 µg/kg)
Benzo(k)fluoranthene	650 to 410,000J µg/kg	Residential PRG (6,200 µg/kg) Industrial PRG (29,000 µg/kg)
Carbazole	110J to 100,000J µg/kg	Residential PRG (24,000 µg/kg)
Chrysene	1,000 to 600,000J µg/kg	Residential PRG (62,000 µg/kg) Industrial PRG (290,000 µg/kg)
Dibenzo(a,h)anthracene	150J to 26,000 µg/kg	Residential PRG (62 µg/kg) Industrial PRG (290 µg/kg)
Dibenzofuran	150J to 490,000J µg/kg	Residential PRG (290,000 µg/kg)
Fluoranthene	1,200 to 1,600,000 µg/kg	Residential PRG (56,000 µg/kg)

Parameter	Concentration or Range of Concentrations	Screening Level Exceeded ^a
Indeno(1,2,3-cd)pyrene	220J to 52,000 µg/kg	Residential PRG (620 µg/kg) Industrial PRG (2,900 µg/kg)
Soil Semivolatile Organic Compounds (Continued)		
Naphthalene	400J to 3,300,000 µg/kg	Residential PRG (56,000 µg/kg) Industrial PRG (190,000 µg/kg)
Soil Pesticides		
Heptachlor epoxide	2.7U to 59J µg/kg	Residential PRG (53 µg/kg)
Groundwater Inorganics		
Antimony	3.7U to 7.4 µg/L	MCL ^b (6 µg/L)
Arsenic	9.5 to 54.3 µg/L	MCL ^b (50 µg/L)
Lead	207 to 485 µg/L	MCL ^b (15 µg/L)
Groundwater Volatile Organic Compounds		
Benzene	10U to 100 µg/L	MCL ^b (5 µg/L)
Groundwater Semivolatile Organic Compounds		
Benzo(a)pyrene	10UJ to 5J µg/L	MCL ^b (0.2 µg/L)
Bis(2-ethylhexyl)phthalate	20UJ to 77J µg/L	MCL ^b (6 µg/L)
Water Volatile Organic Compounds		
Benzene	8J µg/L	MCL ^b (5 µg/L)

**SUMMARY OF RESULTS FOR ANALYTES THAT
EXCEEDED SCREENING LEVELS IN AREA B**

Parameter	Concentration or Range of Concentrations	Screening Level Exceeded ^a
Soil Inorganics		
Arsenic	2.7 to 16.4 mg/kg	Residential PRG (0.39 mg/kg) Industrial PRG (2.7 mg/kg)
Chromium	2.2 to 42.5 mg/kg	Residential PRG (30 mg/kg)
Cyanide	0.50J to 18.5 mg/kg	Residential PRG (11 mg/kg)
Iron	2,850 to 25,500 mg/kg	Residential PRG (2,300 mg/kg)
Soil Semivolatile Organic Compounds		

Parameter	Concentration or Range of Concentrations	Screening Level Exceeded ^a
Benzo(a)anthracene	1,400J to 12,000 µg/kg	Residential PRG (620 µg/kg) Industrial PRG (2,900 µg/kg)
Benzo(a)pyrene	1,100J to 15,000 µg/kg	Residential PRG (62 µg/kg) Industrial PRG (290 µg/kg) Residential ERG (8,800 µg/kg)
Benzo(b)fluoranthene	1,200J to 15,000 µg/kg	Residential PRG (620 µg/kg) Industrial PRG (2,900 µg/kg)
Benzo(k)fluoranthene	900J to 12,000 µg/kg	Residential PRG (6,200 µg/kg)
Dibenzo(a,h)anthracene	520J to 3,800J µg/kg	Residential PRG (62 µg/kg) Industrial PRG (290 µg/kg)
Indeno(1,2,3-cd)pyrene	540J to 12,000 µg/kg	Residential PRG (620 µg/kg) Industrial PRG (2,900 µg/kg)
Groundwater Inorganics		
Antimony	7.4 µg/L	MCL ^b (6 µg/L)
Cadmium	5.0 µg/L	MCL ^b (5 µg/L)
Lead	633 µg/L	MCL ^b (15 µg/L)
Mercury	8.0 µg/L	MCL ^b (2 µg/L)
Groundwater Semivolatile Organic Compounds		
Benzo(a)pyrene	58 µg/L	MCL ^b (0.2 µg/L)

**SUMMARY OF RESULTS FOR ANALYTES THAT
EXCEEDED SCREENING LEVELS IN AREA C**

Parameter	Concentration or Range of Concentrations	Screening Level Exceeded ^a
Soil Inorganics		
Arsenic	2.9 to 103 mg/kg	Residential PRG (0.39 mg/kg) Industrial PRG (2.7 mg/kg) Superfund Chemical Data Matrix (23 mg/kg)
Chromium	7.6J to 192J mg/kg	Residential PRG (30 mg/kg) Industrial PRG (64 mg/kg)
Cyanide	0.030U to 190 mg/kg	Residential PRG (11 mg/kg) Industrial PRG (35 mg/kg)

Parameter	Concentration or Range of Concentrations	Screening Level Exceeded ^a
Iron	5,350 to 77,400 mg/kg	Residential PRG (2,300 mg/kg)
Soil Semivolatile Organic Compounds		
Benzo(a)anthracene	120J to 1,600J µg/kg	Residential PRG (620 µg/kg)
Benzo(a)pyrene	230J to 1,200 µg/kg	Residential PRG (62 µg/kg) Industrial PRG (290 µg/kg)
Benzo(b)fluoranthene	230J to 1,400J µg/kg	Residential PRG (620 µg/kg)
Dibenzo(a,h)anthracene	89J to 310J µg/kg	Residential PRG (62 µg/kg) Industrial PRG (290 µg/kg)
Indeno(1,2,3-cd)pyrene	170J to 750J µg/kg	Residential PRG (620 µg/kg)
Groundwater Inorganics		
Lead	364 µg/L	MCL ^b (15 µg/L)

**ANALYTICAL RESULTS FOR SUSPECTED
ASBESTOS-CONTAINING MATERIAL SAMPLES**

Suspected Asbestos- Containing Material Location	Sample ID	Polarized Light Microscopy Technique				
		Chrysolite (percent)	Amosite (percent)	Cellulose (percent)	Glass (percent)	Filler/ Binder (percent)
North coke ovens battery	MC-ACM-01	ND	54 to 60	3 to 5	3 to 5	30 to 40
	MC-ACM-02	ND	80 to 90	ND	ND	10 to 20
Piping west of north condensing house	MC-ACM-03	25 to 35	ND	< 1	ND	65 to 75
Tar precipitator area piping	MC-ACM-04	40 to 45	ND	3 to 5	ND	45 to 54, Synthetic 3 to 5
Power House basement	MC-ACM-05	30 to 40	ND	< 1	ND	60 to 70
Byproducts building, ground level	MC-ACM-06	62 to 70	ND	3 to 5	ND	25 to 35
Purification Building	MC-ACM-07	25 to 30	5-10	3 to 5	3 to 5	50 to 64, Synthetic < 1
Stockpiled bricks in area south of former coke and gas production area	MC-ACM-08	ND	ND	2 to 3	ND	95 to 97, Synthetic 1 to 2

Note:

ND = Not detected

Notes:

^a When the concentration of a given analyte in a sample is equal to or greater than the analyte screening level, the source documents define this as an exceedance of the screening level.

^b U.S. Environmental Protection Agency Superfund Chemical Data Matrix groundwater pathway MCLs (EPA 1996)

µg/kg = Microgram per kilogram

µg/L = Microgram per liter

ERG = Emergency response guideline

J = Value reported is the approximate concentration of the analyte

MCL = Maximum contaminant level

mg/kg = Milligram per kilogram

PRG = Preliminary remediation goal

U = Analyte was not present at a concentration greater than or equal to the reporting limit; value shown is the reporting limit

UJ = Analyte was not present at a concentration greater than or equal to the reporting limit; value shown is an estimate of the reporting limit

2. Physical location

The property is located at 311 East Greenfield Avenue in Milwaukee, Milwaukee County, Wisconsin. Coordinates for the site are latitude 43 degrees 01' 00" North and longitude 87 degrees 54' 30" West, as determined by Arcview or Landview III. The Site covers about 46 acres in a primarily industrial and commercial area north of the Kinnickinnic River and west of the Lincoln Memorial Harbor. It is bordered by East Greenfield Avenue to the north, railroad tracks and a coal storage area to the northeast, the Kinnickinnic River to the east and south, and railroad tracks to the west. Grede Foundries, Inc., is located directly west of the Site, and residential areas are located within 0.5 mile of the Site along 1st, 2nd, and 3rd Streets.

A Region 5 Superfund Environmental Justice (EJ) analysis has been prepared for the area surrounding the Site. This analysis is presented in Attachment IV. In Wisconsin, the low-income percentage is 28 and the minority percentage is 9. To meet the EJ concern criteria, the area within 1 mile of the Site must have a population that is twice the state low-income percentage or/and twice the state minority percentage. That is, the area must be at least 56% low-income and/or 18% minority. At this Site, the low-income percentage is 68.0% and the minority is 34.0% as determined by Arcview or Landview III EJ analysis. Therefore, this site does meet the region's EJ criteria based on demographics as identified in Region 5 Interim Guidelines for Identifying and Addressing a Potential EJ Case (June 1998).

The PRPs are working with a developer and are planning to submit a work plan to the Agency to conduct cleanup actions and total demolition of the site structures. PRP work would be conducted under an AOC with the Agency. A cost estimate is currently being completed for potential removal and remedial activities.

C. State and Local Authorities' Roles

1. State and local actions to date

The City of Milwaukee is negotiating with the PRPs to address cleanup issues and potential redevelopment of the property. The WDNR is working with the City of Milwaukee to address the Site, and referred the Site to U.S. EPA for assistance in a removal evaluation.

2. Potential for continued State/local response

Both the City of Milwaukee and the WDNR will be highly involved with any future action at this Site. The Site is in a prime redevelopment area, and is considered a likely Brownfields candidate.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A removal action is necessary at the Solvay Coke & Gas Site to abate the threat to public health, welfare or the environment posed by the release and potential release of hazardous substances. The NCP, 40 C.F.R. 300.415(b)(2), provides eight specific criteria for evaluation of a threat and the appropriateness of a removal action. Site conditions documented by EPA during the Site investigation and by Tetra Tech in the Site Assessment Report dated May 2, 2002, indicate that the Site meets the following criteria for a time-critical removal action:

Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances or pollutants or contaminants.

As previously noted, the Site is located at 311 East Greenfield Avenue in Milwaukee. The Site's location in a major metropolitan area increases the possibility of actual or potential exposure of nearby human populations, animals or the food chain to hazardous substances. The Site is currently occupied by Wisconsin Wrecking which operates a salvage operation on-site. In addition, Grede Foundries, Inc. is located west of the Site across the railroad tracks, and residential areas are located within 0.5 mile of the Site along 1st, 2nd, and 3rd Streets.

Since the Site is not abandoned and Wisconsin Wrecking has ongoing operations on the Site, there is actual or potential exposure to on-site workers and visitors. In addition to those with access to the Site, there is the potential for exposure of trespassers to hazardous substances. The threat of exposure to trespassers is elevated since the Site is not entirely secured and is located in an urban area. Humans and wild animals can gain access to the site and can be exposed to hazardous

substances. During the October 25, 2001 Site reconnaissance, two deer were observed in Area A at the Site. Deer may be feeding in areas that are contaminated with hazardous substances or contaminants. At several site locations, corrosive and hazardous substances that are capable of causing harm to exposed individuals were identified. Humans and animals may be exposed to inorganics (antimony, arsenic, cadmium, chromium, copper, cyanide, lead, iron, manganese, mercury, nickel and zinc), ACM, benzene, carbazole, and polynuclear aromatic hydrocarbons (PAH) such as benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, pyrene, and other organics (dibenzofuran and naphthalene).

Antimony is released to the environment from natural and industrial sources. According to the Agency for Toxic Substances and Disease Registry (ATSDR), exposure to antimony at high levels can result in a variety of adverse health effects. Breathing high levels of antimony for a long period can irritate the eyes and lungs and can cause additional problems with the lungs, heart, and stomach. Antimony concentrations exceeded the MCL in Area A and B groundwater.

Arsenic is a naturally occurring element that can be toxic at high concentrations. According to ATSDR, inhalation of arsenic is the most common exposure route. Exposure to arsenic at high levels can result in death. At lower levels, arsenic can cause nausea, vomiting, decreased production of red and white blood cells, abnormal heart rhythm, and damage to blood vessels. Arsenic is a known carcinogen. Arsenic concentrations exceeded the PRGs in Area A, B, and C soil and MCL in Area A groundwater. In addition, the OME level for arsenic was exceeded in Area D river sediment.

Cadmium is a naturally occurring element that can be toxic. According to ATSDR, the main exposure route for cadmium is inhalation. The health effects of inhalation of high levels of cadmium include severe damage and possibly death. Long-term exposure to lower cadmium levels results in kidney disease, lung damage, and fragile bones. Cadmium concentrations in groundwater exceeded the MCL in Area B. In addition, the OME level for cadmium was exceeded in Area D river sediment.

Chromium is a naturally occurring element. However, hexavalent chromium is generally produced for industrial processes such as chrome plating and finishing. The health effects of exposure to trivalent and hexavalent chromium have been researched and are well documented. Hexavalent and trivalent chromium can both be toxic at high levels; however, hexavalent chromium is more toxic. Available information about chromium, especially hexavalent chromium, is mainly related to worker exposure. Plating industry workers and workers in other industries using chromium are most often exposed to toxic levels. Chromium concentrations exceeded the PRGs in Area A, B, and C soil. In addition, the OME level for chromium was exceeded in Area D river sediment.

Copper is a reddish metal that occurs naturally in the environment. Copper is extensively mined and processed in the United States. The health effects of exposure to copper have been researched and are well documented. Copper can be toxic at high levels. Available information about copper

is mainly related to worker exposure. Plating industry workers and workers in other industries using copper are most often exposed to toxic levels. Copper concentrations exceeded the residential PRG in Area A. Copper concentrations exceeded the OME level in Area D river sediment.

Cyanide is a very poisonous chemical. It enters the environment both from natural processes and from industrial activities. High concentrations of cyanide are toxic to soil microorganisms and can pass through soil into groundwater. According to ATSDR, cyanide exposure routes include inhaling air, drinking water, touching soil, and eating food containing cyanide. In addition, smoking cigarettes and breathing smoke-filled air during fires are major sources of cyanide exposure. In large amounts, cyanide is very harmful to humans, and exposure for a short time damages the brain and heart and may cause coma and death. Symptoms of cyanide exposure may include deep breathing, shortness of breath, convulsions, and loss of consciousness. Cyanide concentrations exceeded the PRGs in Area A, B, and C soil.

Lead is a naturally occurring element that can be toxic. According to ATSDR, lead dust can be inhaled or swallowed. The health effects of lead are the same regardless of the exposure route. Lead can affect almost every organ and system in the body. At high levels, it can cause weakness in the extremities, affect memory, cause anemia, and damage the male reproductive system. Low-level effects are uncertain. Lead concentrations exceeded the PRGs in Area A soil and in Area A, B, and C groundwater. In addition, the OME level for lead was exceeded in Area D for river sediment.

Elemental mercury is a hazardous metal that can cause serious health problems. Elemental mercury vapors can affect many different areas of the brain, the nervous system, and their associated functions. Children and fetuses are most vulnerable to the serious health effects of mercury. Elemental mercury is a shiny, silver-white, odorless liquid that is used in thermometers, other medical and industrial instruments, electrical switches, batteries, and dental fillings. It is also used industrially to produce chlorine gas and caustic soda. Adverse human health effects can result from acute or chronic exposure to mercury. Exposure occurs primarily through inhalation and to a lesser extent through skin absorption and ingestion. Acute exposure to high levels of elemental mercury vapor can affect the brain and central nervous system. Exposure to high levels of mercury vapor can also cause irritation of the linings of the mouth, lungs, and airways; increased blood pressure and heart rate; nausea; vomiting; diarrhea; skin rashes; eye irritation; and a condition known as acrodynia, which is characterized by red, peeling skin, especially on the hands, feet, and nose. Mercury exposure may cause weakness, fretfulness, sleeplessness, excessive salivation or sweating, itching, swelling, fever, memory loss, and elevated blood pressure. Symptoms of chronic exposure to elemental mercury include personality changes (irritability, shyness, or nervousness), tremors, vision changes, deafness, lack of muscle coordination, loss of sensation, and memory difficulties (ATSDR, 2001). Mercury concentrations exceeded the MCL in Area B groundwater. In addition, the OME level for mercury was exceeded in Area D river sediment.

Asbestos is a name used for a group of six different fibrous minerals (amosite, chrysolite, crocidolite, and the fibrous varieties of tremolite, actinolite, and anthophyllite) that occur naturally in the environment. Asbestos fibers can enter air or water as a result of the breakdown of natural deposits or manufactured asbestos products such as building materials. Furthermore, asbestos fibers may be released to air by disturbance of ACM during product use; demolition work; building maintenance, repair, and remodeling. Asbestos mainly affects the lungs and the membrane that surrounds the lungs. Inhaling high levels of asbestos fibers may cause formation of scar-like tissue in the lungs and in the pleural membrane that surrounds the lungs, a condition known as asbestosis. Asbestosis is a serious disease that can eventually lead to disability and death. Inhaling asbestos can also increase the risk of cancer in humans. Two types of cancer are caused by asbestos exposure: lung cancer and mesothelioma, which is a cancer of the thin lining surrounding the lungs and abdominal cavity. ACM was identified in several areas at the Site.

Benzene is a widely used chemical formed by both natural processes and human activities. Breathing benzene vapor can cause drowsiness, dizziness, and unconsciousness. Long-term benzene exposure has adverse effects on the bone marrow and can cause anemia and leukemia. Benzene concentrations exceeded the PRG in Area A soil and MCL in Area A groundwater. In addition, the OME level for benzene was exceeded in Area D river sediment. Benzene was also detected in AST solid samples and former AST pit solid and water samples.

Carbazole is a compound that occurs in the products of incomplete combustion of nitrogen-containing organic matter. The compound is used to make photographic plates that are sensitive to ultraviolet light. According to the National Toxicology Program, carbazole is also used in the manufacture of reagents, explosives, insecticides, lubricants, and rubber antioxidants. Carbazole exposure routes include ingestion, inhalation, and skin absorption. Symptoms of exposure to this compound may include skin irritation and allergic reactions. It can also cause dermatitis, bronchitis, coughing, dyspnea, and respiratory distress. Carbazole concentrations exceeded the PRGs in Area A soil, and PRGs and residential ERG in former AST pit area.

PAHs were detected at the site at concentrations exceeding screening levels. The PAHs appear to be associated with materials and by-products generated at the site during past production of manufactured gas. According to animal studies, PAHs can have harmful effects on skin, on body fluids, and on the ability to fight disease. Some people exposed to PAHs for long periods of time have developed cancer. PAH concentrations exceeded soil screening levels at Areas A, B, C, and OME levels in Area D river sediment and were detected at higher concentrations in ASTs and former AST pit.

Naphthalene found at the site appears to be associated with coal tar generated during past production of manufactured gas. Naphthalene can irritate the skin, eyes, nose, and throat and can cause skin allergies. Naphthalene may damage the kidneys, the liver, and red blood cells. Naphthalene was detected at concentrations exceeding PRGs, and in the AST waste samples and former AST pit at a concentration over the Superfund Chemical Data Matrix screening level.

The dibenzofuran found at the site appears to be associated with coal tar generated during past production of manufactured gas. Dibenzofuran can irritate the skin, eyes, nose, and throat. Repeated exposure may result in skin growths, rashes, and changes in skin color (NJDHSS, 1998). No occupational exposure limits have been established for dibenzofuran, but this does not mean that this chemical is not harmful. Dibenzofuran was detected at concentrations exceeding the PRGs for soil in Area A, in the AST waste samples, and former AST pit at a concentration that exceeded the ERG.

Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release.

Many of the ASTs at the Site have deteriorated to the point that they are no longer structurally sound. In addition, many of the ASTs at the Site are open so that precipitation accumulates in the ASTs until eventually the contents overflow. This deterioration and overflow is indicated by staining of concrete and by evidence of leaking materials, including coal tar, in soil near some of the ASTs sampled. Over 30 ASTs were inventoried, and many of them contained water and a semisolid, viscous material consisting of coal tar. During the inventory, approximately 47,064 gallons of coal tar and 138,665 gallons of water were found in the ASTs. Individual ASTs pose an imminent threat of release or have in fact released coal tar-containing waste to the environment, as evidenced at various existing ASTs and at the former AST pit.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.

Surface runoff from the Site can enter the river at various locations. This runoff could contain contaminated surface soil. Various metals, cyanide, and PAHs were found in surface soils. These soil contaminants could migrate off site.

ASTs that are subjected to freezing temperatures and that are exposed to precipitation could fail and release their contents to nearby areas. Also, many ASTs at the site are open and allow precipitation to accumulate inside. As such ASTs deteriorate from weathering, the mixture of precipitation and waste within them poses a greater threat of release.

Arsenic concentrations exceeded the PRGs in Area A, B, and C soil and MCL in Area A groundwater.

ACM was identified in several areas of the Site. Benzene concentrations exceeded the PRGs in Area A soil and MCL in Area A groundwater. Benzene was also detected in AST waste samples and the former AST pit. Chromium concentrations exceeded the PRGs in Area A and B soil. Cyanide concentrations exceeded the PRGs in Area C soil. Lead concentrations exceeded the PRGs in Area A soil and in Area A, B, and C groundwater. Mercury concentrations exceeded the MCL in Area B groundwater. Carbazole concentrations exceeded the PRGs in Area A soil and PRGs and ERG in former AST pit area. PAH concentrations exceeded soil screening levels at Areas A, B, C,

and were detected at higher concentrations in ASTs and former AST pit.

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

The structural integrity of many of the buildings at the Site is questionable. Inspection of the interiors of the major buildings revealed numerous structurally unreliable walkways, stairways, and walls. The exteriors of some of the buildings and other structures are dilapidated to the extent that structural debris could break loose and fall unexpectedly during windy weather conditions.

In addition, piping insulation, including ACM, has deteriorated significantly and is exposed to the environment. There is no heating in some of the large buildings to prevent freezing of the containers inside. Precipitation entering through the roof could also cause machinery and containers inside buildings to rust and release their contents onto the floor. For example, the By-products Building contains machinery that is leaking machine oil onto the floor. This oil may be carried from the inside of the building to the sewer system during rainfall events, and the sewer may be connected to storm water lines that discharge to the river. The oil could also migrate to subsurface soil if the structural integrity of the sewer is poor. The presence of contaminated soil at the site has been confirmed by sample analytical results as well as by visual observation of subsurface soils during excavation of exploratory pits. Therefore, precipitation and infiltration to groundwater could cause soil contaminants to migrate off site.

ASTs that are subjected to freezing temperatures and that are exposed to precipitation could fail and release their contents to nearby areas. Also, many ASTs at the site are open and allow precipitation to accumulate inside. As such ASTs deteriorate from weathering, the mixture of precipitation and waste within them poses a greater threat of release.

IV. ENDANGERMENT DETERMINATION

Given the current conditions at the Site and the nature of the hazardous substances on-Site, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing and completing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment. The possibility of further releases of the hazardous substances present a threat to the nearby population and the environment via the exposure pathways described in Section III.

V. PROPOSED ACTIONS

There are obvious time-critical elements present at the Site. The hazardous substances are located near industrial and residential areas, and must be immediately addressed. The proposed removal actions at the Site would eliminate the imminent and substantial threats to human health, welfare, or

the environment, as outlined in this memorandum.

The following response actions are **proposed to mitigate threats posed by the presence of hazardous substances at the Site.**

- a. Develop and implement a site-specific **work plan** including a proposed time line.
- b. Develop and implement a site-specific **health and safety plan**.
- c. Establish and maintain site security **measures** during the removal actions, which may include security guard service.
- d. Identify, sample and characterize the **hazardous substances** located at the Site.
- e. Arrange and effect removal of all ACM on exterior and interior structures, and loose ACM on the ground surface.
- f. Arrange and effect removal of all coal tar residue and associated tankage and piping located above and/or below ground surface.
- g. Conduct decontamination and demolition of Site structures as necessary.
- h. Excavate and remove visually contaminated surface soils as necessary to prevent direct contact threats from spilled coal tar and/or other **hazardous substances**.
- i. Excavate and remove waste from the **former AST pit area** (sample results from this area are presented in Table 17 of the Site Assessment Report) to prevent direct contact and migration of hazardous substances.
- j. Remove all other hazardous substances on-site, such as furnace brick, residual products in tanks and/or containers, and laboratory chemicals.
- k. Bulk, containerize, and consolidate **wastes** as necessary in preparation for off-site disposal to a U.S.EPA approved disposal facility.
- l. Prepare and submit a summary report of the removal actions.

All hazardous substances, pollutants or **contaminants** removed off-site pursuant to this removal action for treatment, storage or disposal **shall be treated, stored, or disposed of at a facility in compliance, as determined by U.S. EPA, with the U.S. EPA Off-Site Rule, 40 CFR 300.440, 58 Federal Register 49215 (Sept. 22, 1993).**

The removal action will be taken in a **manner not inconsistent with the NCP.** The OSC has begun

planning for provisions of post-removal site control, consistent with the provisions of Section 300.415(l) of the NCP. It is envisioned that after implementation of this removal action, there will be a need for post-removal site control and potential remedial activities to address contamination not addressed by the removal action including hazardous substances in subsurface soils, groundwater and sediments.

All applicable and relevant and appropriate requirements (ARARs) of federal and state law will be complied with, to the extent practicable. A federal ARAR determined to be applicable for the Site is the RCRA Off-Site Disposal Policy. Any additional federal and state ARARs will be addressed to the extent practicable. A letter dated September 6, 2002, was sent to the Wisconsin DNR requesting any additional ARARs that would be appropriate for this site.

The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants or contaminants at the Site which may pose an imminent and substantial endangerment to public health, welfare, or the environment. These response actions do not impose a burden on the affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

A delay or non-action at the Site may result in an increased likelihood of direct contact to human populations by the hazardous substances. Since the Site is easily accessible, the various threats to human health and/or the environment, pose a serious threat to the local population. Additionally, any delay or non-action will also increase the likelihood of contamination migration off-site into the surface waters and surrounding commercial and residential neighborhood.

VII. OUTSTANDING POLICY ISSUES

No significant policy issues are associated with the Milwaukee Solvay Coke & Gas site.

VIII. ENFORCEMENT

For Administrative purposes, information concerning the enforcement strategy for this site is contained in the Enforcement Confidential addendum. (Attachment I)

IX. RECOMMENDATION

This decision document represents the selected removal action for the Milwaukee Solvay Coke & Gas Site, located in Milwaukee, Milwaukee County, Wisconsin, developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site (see Attachment II). Conditions at the Site meet the criteria of Section 300.415(b)(2) of the NCP for a removal action and I recommend your approval of the proposed removal action.

APPROVE: Wm. E. Myer DATE: 9/17/02
Director, Superfund Division

DISAPPROVE: _____ DATE: _____
Director, Superfund Division

Attachments: I. Enforcement Confidential Addendum
II. Administrative Record
III. Region 5 Superfund EJ Analysis
IV. Diagrams/Maps

cc: R. Worley, U.S.EPA, OERR, 5202G
Michael T. Chezick, U.S. Department of the Interior
Custom House, Room 244
200 Chestnut Street
Philadelphia, PA 19106 w/o Enf. Addendum
A. Walden, WDNR
Superfund Coordinator, w/o Enf. Addendum

ENFORCEMENT ADDENDUM

**MILWAUKEE SOLVAY COKE AND GAS SITE
MILWAUKEE, MILWAUKEE COUNTY, OHIO
AUGUST 2002**

**ENFORCEMENT CONFIDENTIAL
NOT SUBJECT TO DISCOVERY**

(REDACTED 2 PAGES)

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

ATTACHMENT II

U.S. ENVIRONMENTAL PROTECTION AGENCY REMOVAL ACTION

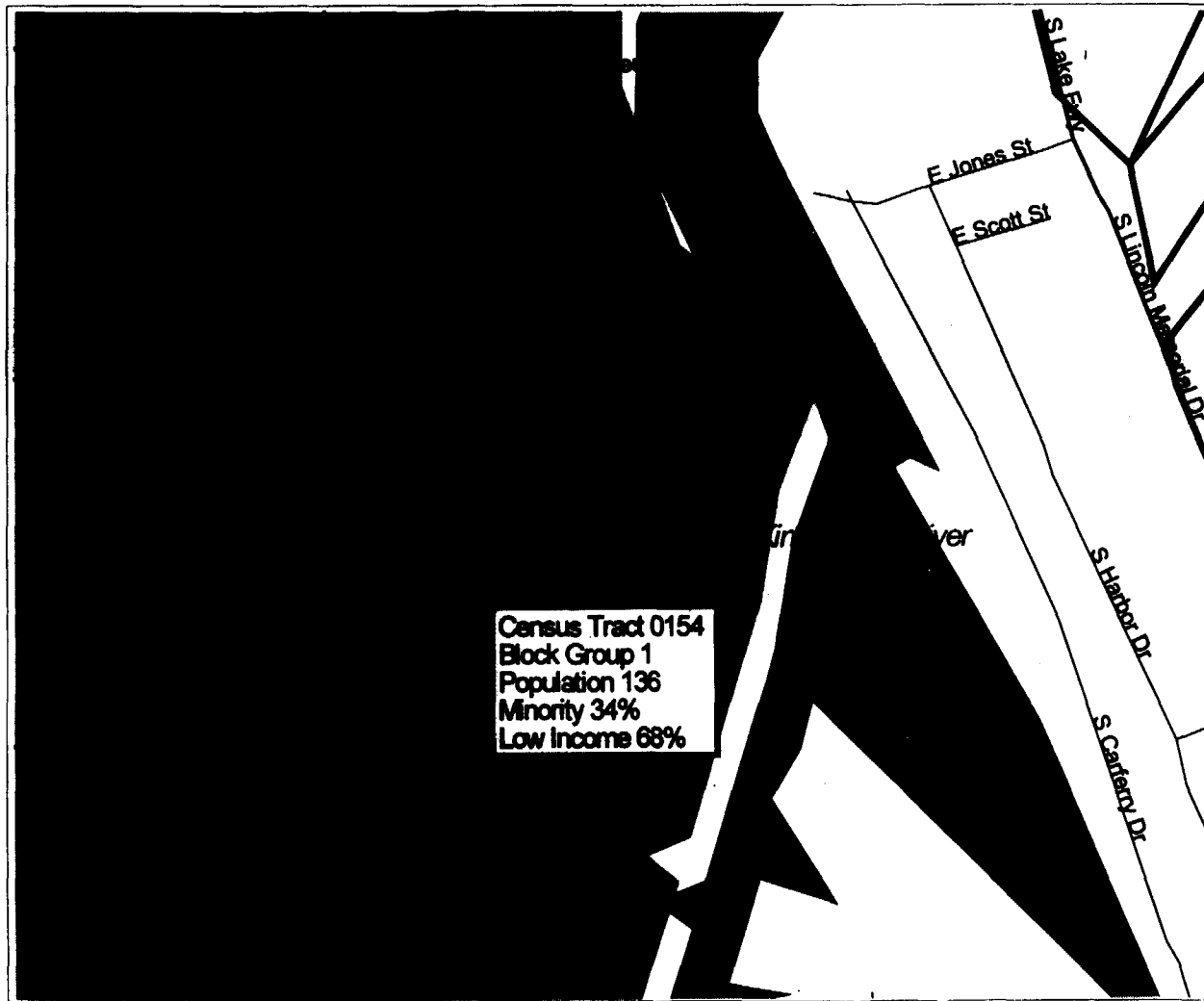
ADMINISTRATIVE RECORD FOR SOLVAY COKE & GAS SITE MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

ORIGINAL
JULY 16, 2002

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	00/00/01	Tetra Tech EM, Inc.	U.S. EPA	Site Assessment Report for the Solvay Coke & Gas Plant (2 Volumes)	1000
2	00/00/00	Benning, B., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Determination of Threat to Public Health and the Environment at the Solvay Coke & Gas Site (PENDING)	

Region 5 Superfund EJ Analysis

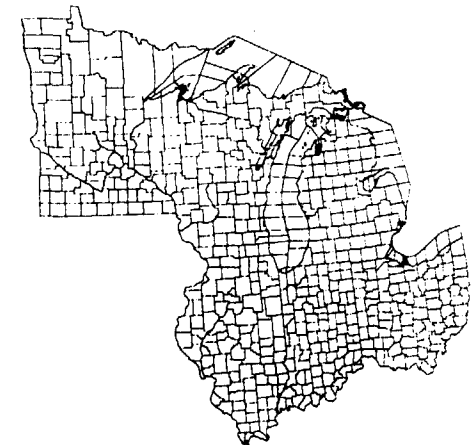
Solvay Coke & Gas Site Milwaukee, WI



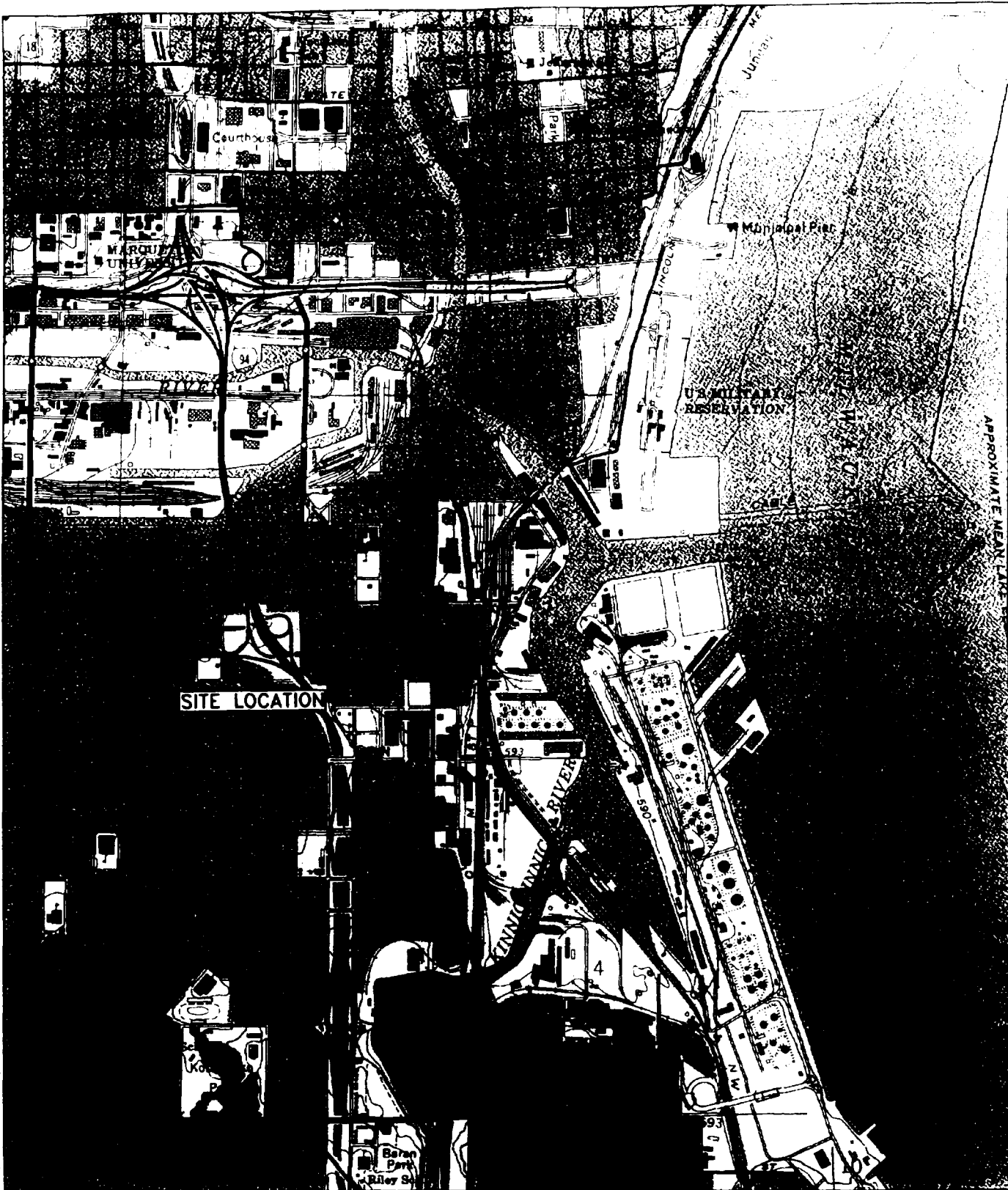
EJ Identification

- Low Income and Minority Less than State Average
- Low Income or Minority at or Greater than State Average
- Low Income or Minority 2 Times or Greater than State Average
[meets Region 5 EJ Case criteria]
- ★ Site Location
- Block Group Boundary

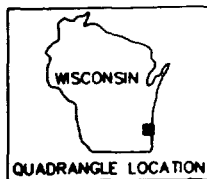
Region 5 EJ Case Criteria for Wisconsin
Minority: 18% or greater
Low Income: 56% or greater



0 0.2 0.4 0.6 0.8 1 Miles



0 1000 2000
SCALE IN FEET



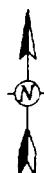
MILWAUKEE SOLVAY COKE AND GAS SITE
MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN
TDD NO. S05-0110-013

FIGURE 1
SITE LOCATION MAP

SOURCE: MODIFIED FROM USGS, MILWAUKEE, WISCONSIN, QUADRANGLE, 1971



0 250 500
SCALE IN FEET



MILWAUKEE SOLVAY COKE AND GAS SITE
MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN
TDD NO. S05-0110-013

FIGURE 2
SITE LAYOUT MAP

SOURCE: MODIFIED FROM USGS 2000



0 500 1000
SCALE IN FEET



MILWAUKEE SOLVAY COKE AND GAS SITE
MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN
TOD NO S05-0110-013

FIGURE 3
AREAS OF INTEREST MAP